DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

#7

NATIONAL INTELLIGENCE SURVEY

Exempt from general declassification schedule of E.O. 11652. Exemption Category 58(1), (2), and (3). Declassified only on approval of the Director of Central Intelligence.

COMMUNIST CHINA

EXEMPT
From Automatic Declassification
Reviewed by CIA Under E.O. 12958 § 3.4
Exemption: 25X ____ Date/Event ____
Date: 9/23/98

AIR FORCES

JUNE 1966

DOCUMENT NO.
NO CHANGE IN CLASS.
CLASS. CHANGED TO: TS S C
NEXT REVIEW DATE:
AUTH: HR 70-2
DATE: 26 SEP 1983 REVIEWER: 000000

JOB NO. 72-
BOX NO. 13
FOLDER NO. 2
TOTAL DOCUMENTS HEREIN 1

WITHDRAWN

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

TABLE OF CONTENTS

This Section 83 supersedes the one dated January 1962, copies of which should be destroyed.

Part I. Chinese Communist Air Force

	Page
A. Strategic significance	1
1. General	1
2. Air value of the area	1
3. International agreements	2
4. International role of the air force	3
5. Role of the air force in national politics	3
6. Significant trends	3
B. Historical development	3
C. Doctrine of employment	7
1. General	7
2. Air doctrine	7
3. Chinese Communist airpower development	8
D. Organization	9
1. Position in government and defense structure	9
2. Air high command	9
3. Major commands/components	10
4. Composition of operational commands	11
5. Territorial organization	11
E. Operational system	12
1. Fighter forces	12
2. Tactical and strategic bombers	13
3. Air ground support	13
4. Surface-to-air missiles, antiaircraft artillery, and early warning radar	13
5. Selected aircraft performance data and characteristics	16
F. Personnel	19
1. Procurement	19
2. Conditions of service	19
3. Characteristics	20
4. Morale factors	20
5. Selected personalities	20
G. Training	22
1. General	22
2. Preparatory	23

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10
CCESS RESTRICTED
withdrawn from this file:

Page

3. Preoperational flying 23
4. Ground personnel 24
5. Advanced military 25
6. Operational training system 25
7. Reserve 25
8. Foreign air programs 26

H. Logistics 26

1. Supply 26
2. Maintenance 27
3. Relationship of requirements to production 30
4. Appraisal of the logistics system 31

I. Reserve and mobilization 31

1. Reserve system 31
2. Mobilization system 32

J. Air facilities 32

1. General 32
2. Characteristics 32
3. Distribution 33
4. Historical development 35
5. Construction practices 38
6. Projected development 39

K. Means of identification 39

1. Aircraft 39
2. Unit identification 39
3. Uniforms and insignia 39
4. Rank 39

Part II. Chinese Communist Naval Air Force

Page

A. Development, organization, and significance 41

B. Training and operational procedures 41

C. Air facilities 41

1. General 41
2. Distribution 42

Part III. Comments on Principal Sources

FIGURES

Page

Fig. 1 Operational aircraft strength (*table*) 4
Fig. 2 Chinese Communist armed forces (*chart*) 9

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

ACCESS RESTRICTED

		Page
Fig. 3	Organization of CCAF and CCNAF (*chart*)	10
Fig. 4	CCAF air division (*chart*)	11
Fig. 5	Air defense districts (*map*)	12
Fig. 6	Distribution of AAA units (*table*)	14
Fig. 7	Characteristics of AA guns (*table*)	14
Fig. 8	Early warning and ground controlled intercept radar deployment (*table*)	15
Fig. 9	Acquisition, fire control, and missile control radar deployment (*table*)	16
Fig. 10	Bomber performance summary (*table*)	17
Fig. 11	Bomber armament (*table*)	17
Fig. 12	Fighter-interceptor performance summary (*table*)	17
Fig. 13	Fighter armament (*table*)	18
Fig. 14	Transport/cargo aircraft performance summary (*table*)	18
Fig. 15	Major Chinese Communist air schools (*table*)	23
Fig. 16	Daily logistic requirements per ten aircraft (*table*)	28
Fig. 17	Aircraft serviceability rates (*table*)	30
Fig. 18	Chang-shu Airfield (*photo*)	34
Fig. 19	Chia-hsing Airfield (*photo*)	35
Fig. 20	Ch'ing-yang Airfield (*photo*)	36
Fig. 21	Aircraft markings (*sketch*)	39
Fig. 22	Uniform and insignia (*sketch*)	40
Fig. 23	Air facilities (*map*)	*follows* 43

This Section was prepared for the NIS by the Defense Intelligence Agency.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

ACCESS RESTRICTED

SELECTED GLOSSARY

BAT	Tu-2, twin-engine, piston, light bomber
BEAGLE	Il-28, twin-engine, jet, light bomber
BEAST	Il-10, single-engine, piston, attack bomber (obsolescent)
BULL	Tu-4, four-engine, piston, medium bomber (B-29 type)
CAB	Li-2, twin-engine, piston, light transport
COACH	Il-12, twin-engine, piston (Convair 240 type), light transport
COLT	An-2, single-engine, piston, light utility biplane
COOT	Il-18, four-engine, turboprop, low wing, medium transport
CRATE	Il-14, twin-engine, piston, improved Il-12, light transport
FAGOT	MiG-15, single-engine, jet, swept-wing fighter
FARMER	MiG-19, twin-engine, jet, swept-wing supersonic fighter
FISHBED	MiG-21, single-engine, jet, swept-wing, supersonic fighter
FRESCO	MiG-17, single-engine, jet, swept-wing fighter
MADGE	Be-6, piston, twin-engine seaplane
MAX	Yak-18, single-engine, piston, primary trainer
MIDGET	U-MiG-15, single-engine, jet, tandem-seat fighter trainer
MOOSE	Yak-11, single-engine, piston, basic trainer

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

CCESS RESTRICTED
from this file:

Air Forces

Part I. Chinese Communist Air Force

A. Strategic significance

1. General

The Chinese Communist Air Force (CCAF), with approximately 2,600 aircraft in operational units, numerically is one of the large military air forces of the world. Personnel strength totals about 76,500, including about 4,000 pilots. The air defense system is supported by surface-to-air missiles (SAM). Currently, the anti-aircraft (AA) defenses include approximately 600 aircraft control and warning (AC&W) radar sites, 3,600 AA guns, and fire control radars such as the standard WHIFF and FIRECAN models. Offensive strength of the CCAF is provided mainly by approximately 150 jet light bombers.

The primary mission of the CCAF is to provide air defense for the mainland and coastal waters, support ground forces, and conduct bombing missions. However, current capability to conduct aerial warfare is limited mainly by an insufficient number of all-weather supersonic fighters and insufficient flying time for pilots. Weapons and aircraft deficiencies have been caused by an inadequate industrial and technical base and by discontinuation of the flow of equipment from the U.S.S.R. Limited POL resources would have an adverse effect on the ability of the air force to maintain operations in a protracted war.

The CCAF and the Chinese Communist Naval Air Force (CCNAF) constitute the second largest air force of the Communist countries and constitute the fourth largest air force in the world. The following estimates show the relative position of the air forces of Communist China to the Soviet and large free world air forces, excluding the U.S. air forces, in terms of approximate aircraft in operational air force and naval air force units, as of January 1966:

COUNTRY	AIRCRAFT
U.S.S.R.	11,000
United Kingdom	4,000
Communist China	3,100
France	1,500

Despite their numerical size, it is estimated that the CCAF and CCNAF have not reached a level of proficiency that would permit them to compete on even terms with the largest air forces of the Western countries. The unquestioned air combat superiority demonstrated by the Chinese Nationalist Air Force during the Formosa Strait crisis in 1958 and during isolated air battles in 1959 and early 1960 indicated that the CCAF and CCNAF lacked the proficiency expected of forces of their size. There is considerable evidence that their proficiency has improved.

The CCAF and the CCNAF have sufficient fighter strength for planned strikes against many adjacent areas and sufficient light bombers to conduct offensive missions against neighboring non-Communist countries. Although the CCAF and CCNAF could effect losses in engagements against the stronger air forces of Western countries, they can hardly be considered a first rate air power.

The CCAF jet light bomber (BEAGLE) units are untested in combat, but they probably represent the most proficient portion of the organization. Pilots and crews are training in both day and night exercises, and they probably would be as well qualified to perform their missions as the fighter pilots.

China is the only Communist country except the U.S.S.R. with some capability for long-range strategic operations. Although this capability is minimal, the fact that it has been retained with a few obsolescent BULL medium prop and two BADGER jet medium bombers indicates the possibility that a future long-range component, utilizing jet medium bombers, may be developed.

Communist China has no known surface-to-surface missiles of strategic significance at the present time, but the appearance of such weapons would constitute a very important change in Communist strategic potential in the Far East. It is believed that extensive efforts are being directed toward development of strategic missiles to serve as a delivery means for the recently acquired nuclear capability.

2. Air value of the area

The territorial expanse of Communist China presents both advantages and disadvantages for support of military air operations. The extensive coastal periphery and lengthy land borders in the south, north, and west pose a requirement for a large-scale air defense capability. Logistic support is made difficult by the size of the area. At the same time, China occupies a strategic position for offensive air operations against much of Asia.

There are approximately 280 airfields and 1 seaplane station in Communist China, including 131 major in-

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

stallations with runways over 5,900 feet in length capable of supporting jet aircraft. Except in the west and southwest, the well distributed air facilities system is capable of supporting all types of air operations. A primary objective has been to improve the air defense system by strengthening the airfield network in the eastern section of the country. The Chinese are now placing more emphasis on development of airfields in regions west of 114 East, especially opposite North Vietnam. Of 28 new airfield construction projects during the period from early 1960 through late 1965, 19 were in the southern and western regions.

With substantial aid from Communist countries, China's indigenous potential for logistic support of large-scale air operations increased during the period from 1950 to 1960. This program included expansion of aircraft production capacity and improvement of transportation facilities.

Technical experts from many Communist countries have worked in China. From 1950 to 1960 the country sent several thousand students, including postgraduates, to the Soviet Union for study. Several thousand workers also were sent to Soviet industrial establishments for on-the-job training. Following a decade of heavy reliance on Soviet technology, spare parts, and equipment, and the withdrawal of Soviet technicians (especially in 1960), China was confronted with the requirement to procure new sources or to develop indigenous capabilities. Elimination of bloc materiel and technical assistance resulted in some dislocations to China's economy and ultimately necessitated a scaling down of ambitious plans for rapid industrialization. Notwithstanding numerous perplexing problems, Communist China has made considerable industrial progress without Soviet assistance.

In the electronics industry, which is vitally related to air logistic support, the Chinese have depended on the Soviet Union and East Germany for most of the capital equipment in their new plants. With substantial technical aid from Communist countries, the Chinese have been manufacturing radio and television receivers, navigational aids, radar, and communications equipment. Chinese laboratories have produced high-speed electronic computers, some types of semiconductor devices (including transistors), and a fairly wide range of more advanced communications equipment, such as medium-capacity microwave sets. Electronic production has, in the main, been limited to modifications rather than new products due to poor independent design capability. The nation's indigenous air weapon systems, especially aircraft and missile production, will be affected by the future capability and rate of expansion of this program.

Communist China has a substantial and growing aircraft industry. This has emerged only in recent years with significant technological and materiel assistance from the U.S.S.R. A complex of airframe, aircraft engine, and aircraft component plants is capable of building fairly modern aircraft in significant quantities. However, these are Soviet designs. While China is not credited with a capability for designing an advanced military aircraft type, it probably is capable of producing significant changes in Soviet-designed models.

The current scope and character of the guided missile production program are unknown, but Chinese leaders are determined to pursue a native missile program. Communist China did not series-produce guided missiles in the 1950-65 period, but it is believed that a research and development program for short- and medium-range ballistic missiles is in progress and that within the next few years limited local production of certain types of guided missiles will be possible. Soviet SAMs probably are being produced in limited quantities in Communist China. It is probable that a few SAMs of Chinese design have been produced on an experimental basis.

3. International agreements

The 30-year Sino-Soviet Treaty of Friendship, Alliance, and Mutual Assistance was signed in February 1950. This treaty and subsequent agreements laid a broad basis for Sino-Soviet cooperation. Probably the most important feature of the 1950 treaty was its provision for a military alliance directed at Japan. It also readjusted Chinese and Soviet interests in such areas as Manchuria and Sinkiang. Both parties obligated themselves to undertake necessary measures to prevent a violation of peace by Japan or any other state directly or indirectly united with Japan. In case of attack on either party by Japan or states allied with Japan, the other party immediately would come to its support. Both parties also obligated themselves to develop and strengthen economic and cultural ties, to render each other all possible economic aid, and to effect necessary economic cooperation.

The treaty also provided for withdrawal of Soviet troops from Port Arthur (Lü-shun) after conclusion of a peace treaty with Japan, but in no event later than the end of 1952. Communist China and the U.S.S.R. agreed to joint utilization of the naval base at Port Arthur to conduct joint military activities in event of aggression by Japan or any other state. The administration of Port Arthur and Dairen (Ta-lien) is undertaken by the Chinese Communist Government.

A Sino-Soviet declaration in October 1954 scheduled the withdrawal of Soviet troops from Port Arthur by 31 May 1955. This agreement was implemented and publicized to show the new situation in the Far East created by the Korean armistice and the growth of China's defense potential. It was used by both the U.S.S.R. and China to demonstrate how Moscow respected Communist China's independence. The Soviet withdrawal resulted in the transfer of aircraft from several regiments and other equipment to the CCAF.

Peking, prior to the current rift, alluded to joint obligations incurred by virtue of the Sino-Soviet alliance, and Moscow stressed the role of China as the "stabilizing" factor in Asia. However, Moscow appeared reluctant to accompany the buildup of China's armed

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10
ACCESS RESTRICTED

forces with public reference to specific military commitments to China in the Far East.

It is possible that a military defense pact still exists between China and North Korea. If future hostilities involve North Korea, Communist China may be expected to aid its Communist neighbor. It also is possible that an agreement exists among the U.S.S.R., Communist China, and North Korea concerning mutual military obligations in the area.

The Chinese Communists also have concluded several scientific cooperation agreements with the U.S.S.R. and with countries of the Warsaw Pact. The most significant of these has been the Sino-Soviet Nuclear Energy Agreement of 1955. Communist China was also a member of the Joint Institute for Nuclear Research (JINR) at Dubna, U.S.S.R. until June 1965.

With the cooling of relations between China and the Soviet Union beginning in 1959, technical assistance was terminated and most of the provisions of the mutual assistance treaties were arbitrarily canceled by Moscow. Aircraft production plants were left half finished and the Soviet advisers who had been placed with CCAF units returned to the U.S.S.R. However, the Soviets apparently felt that it would be against their interests to cut off all aviation support to the Communist Chinese; a flow of aircraft spare parts, engines, and POL has been allowed to reach China from the U.S.S.R. or other Warsaw Pact nations (except Albania). During the period from 1960 to 1965, the Chinese increased their capability to produce electronic and other aviation components to the point where they are now nearly independent of Soviet support. The aircraft production plants left unfinished as a result of the withdrawal of Soviet support have since been the object of a concentrated effort by the Chinese, and these installations are now completed or nearing completion.

4. International role of the air force

The Korean hostilities provided an example of cooperation of Communist countries in command problems under warfare conditions when the CCAF joined the North Korean Air Force and the Soviets in setting up a combined administrative headquarters at Antung, Manchuria. This experience indicates a possible pattern for a combined air command.

Unilaterally, or in concert with the other Communist air forces or "volunteers," the CCAF and CCNAF pose a serious threat to the military position of allied or neutral air forces in the Asiatic area. Since the end of the Korean fighting, these forces have been a major part of the continuing Chinese Communist threat against Taiwan and other Nationalist China areas.

5. Role of the air force in national politics

The CCAF and CCNAF are subject to Party control and are loyal to the regime. Any influence these forces may have on domestic policy is exercised through the regular military and political channels and through the position of ranking air officers in Party councils. The CCAF and CCNAF automatically support the national policies of the regime, which are designed to create a strong, unified, and independent China capable of achieving great-power status and a position of leadership in Asia. This national objective requires the transformation of China from a backward, agrarian country to a modern, industrial state having a powerful military establishment and commanding broad international recognition.

6. Significant trends

Increasing numbers of MiG-19 (FARMER) aircraft detected in Communist China in late 1964 and through 1965 indicate domestic production of this two-engine jet fighter, probably at facilities in Mukden (Shenyang). Communist Chinese production of light or medium bombers in the next 10 years is also a good possibility. The Chinese probably will continue to improve their airfield network to provide better mobility of their fighter and bomber forces.

It is believed that China has no current operational capabilities with missiles, aside from a few surface-to-air types. Efforts in the missile field up to the present probably have been largely limited to copying Soviet missiles. No Chinese missile production facility has been identified, and it is doubtful that any substantial missile production is underway. However, the existence of a missile test center at Shuang-ch'eng-tzu in northwest China has been indicated by considerable evidence accumulated over the past 5 years. There is some evidence that test firing of Soviet-produced, surface-to-surface missiles on this range probably began in late 1959 or early 1960.

Currently, 17 operational surface-to-air missile sites have been identified in Communist China. Eight are in the vicinity of Peking and three have been located on the Shuang-ch'eng-tzu Missile Test Range. An additional site has been built near the North Vietnamese border at Ning-ming Airfield, and the remaining five are scattered throughout central China. The U.S.S.R. supplied the missiles and associated equipment for SA-2 testing in the rangehead area and for limited deployment at Peking. The eight sites near Peking, however, are clearly inadequate for defense of the area, which suggests that their deployment program had been interrupted before completion.

The Chinese Communists, with considerable Soviet assistance in the past, also have been developing a nuclear capability. Three devices have been detonated, one in October 1964, one in May 1964, and the third in May 1966.

B. Historical development

The initial development of the CCAF is obscure. An embryonic force was formed sometime before 1937 when a few Communist youths were selected to receive pilot training under Soviet tutelage. Their training was discontinued when the Red leaders of Sinkiang renewed their allegiance to the Chinese Nationalists. In the following decade, no known attempt was made to establish an air unit of any type.

Authority NND 45333
By JW NARA Date 9/2/10
CCESS RESTRICTED
een withdrawn from this file:

A second period began in 1946, when the Communists again attempted to establish an air force. As a result of this effort, at least one training unit was established in eastern Manchuria. Because equipment was inadequate and in poor condition, the rate of progress was slow and little was accomplished. During 1947 and until late 1948, when a number of trained Chinese Nationalist air personnel and aircraft defected or were captured, training was virtually at a standstill. Thereafter, the air force began to take definite form and, shortly after inauguration of the Communist government in 1949, the headquarters of the CCAF was established in Peking.

Immediately following the signing of the Sino-Soviet treaty in 1950, development of the modern CCAF began. The treaty provided the air force with Soviet officers and technicians to command and retrain an expanded air force; this resulted in delivery to the CCAF of a large number of World War II piston aircraft as well as some of the latest Soviet jet types. Outbreak of the Korean conflict, followed by early Chinese "volunteer" intervention, gave further impetus to the rapid 3-year buildup of the CCAF into one of the world's largest air forces.

Growth of the CCAF in terms of aircraft strength since 1950 is shown in FIGURE 1. Estimated CCAF personnel strengths from midyears 1950 through 1965 inclusive are as follows:

1950	6,000	1958	79,000
1951	22,000	1959	79,000
1952	46,000	1960	77,000
1953	60,000	1961	75,000
1954	66,000	1962	76,600
1955	75,000	1963	66,800
1956	79,000	1964	63,600
1957	79,000	1965	63,600

The Soviets built CCAF air power concurrently with modernization of their own forces in the far eastern U.S.S.R. In some cases the CCAF appeared to enjoy an equipment priority, probably reflecting the need of an indigenous combat potential for the Korean conflict. The CCAF was quickly furnished MULE, MOOSE, and MAX piston training types, as well as operational piston light bombers (BAT), ground attack aircraft (BEAST), and fighters (FRANK and FRITZ). Jet fighters (FAGOT and FARCO) were initially furnished by the Soviets in late 1950; by mid-1951, 300 were available. In early 1953, the CCAF began to receive jet light bombers (BEAGLE), the first ever supplied any non-Soviet air force. Also in early 1953, the CCAF was furnished 10 piston medium bombers (BULLS) and is still the only non-Soviet air force to receive such aircraft. Jet fighter units of the CCAF played a major role in the Sino-Soviet bloc air defense operations during the Korean conflict (Korean and Soviet pilots also flew sorties). Combat proficiency of these units varied from poor to excellent, probably reflecting in part the combat training rotation cycle of pilots. Five broad phases mark the pattern of MiG operations between November 1950 and early 1953.

The first phase (1 November 1950 through January 1951) was the period when MiGs appeared intermittently in flights of four, or sections of six to eight aircraft, but were seldom seen more than a few miles south of the Yalu River, and were rarely engaged. However, U.N. pilots patrolling the south bank of the Yalu from Sinŭiju to the Sup'ung (Suiho) Reservoir frequently spotted MiG patrols paralleling their course on the north side of the river.

During the second phase (1 February 1951 through 30 April 1951) MiGs spread southward in increasing numbers. They were frequently encountered over the Sŏnchŏn-T'aechŏn area and occasionally were seen as far south as Sinanju. The tactics in this phase did not supplant those first used, but they represented a refinement of the old hit-and-run policy.

The third phase (May and June 1951) frequently found MiGs over Sinanju, and scattered enemy jets were reported as far south as P'yŏngyang. The Communists' expanding southward movement brought with it a third distinct Red aerial tactic which U.N. pilots labeled the "Yo-yo." In these maneuvers 20 or more MiGs would often orbit at an altitude superior to that of the U.N. formation and from this group some would

FIGURE 1. ESTIMATED OPERATIONAL

AIRCRAFT	1950	1951	1952	1953	1954	1955	1965	1957
Jet fighters	*na*	300	825	780	720	1,030	1,400	1,350
Piston engine fighters	40	160	120	180	170	200	300	35
Attack*	40	120	100	160	150	150	250	260
Jet light bombers	0	0	0	80	120	205	250	230
Piston light bombers	40	160	260	240	210	200	250	180
Piston medium bombers	0	0	0	10	10	10	10	20
Transports, piston, light	*na*	100	100	100	100	120	130	145
Transports, turboprop, medium	0	0	0	0	0	0	0	0
Recce, jet fighter	0	*na*	*na*	*na*	*na*	*na*	10	25
Recce, jet light bomber	0	0	0	0	0	0	*na*	5
Helicopter, light	0	0	0	0	0	0	0	*na*
Utility/liaison	*na*	*na*	*na*	*na*	*na*	*na*	20	50
Trainer, jet fighter	0	*na*	*na*	*na*	*na*	*na*	*na*	*na*
Total	120	840	1,405	1,550	1,480	1,915	2,620	2,300

* Includes fighters and ground attack aircraft.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

The Chinese Communist Air Force constitutes a significant threat against the West and several Asiatic countries. It already has become a numerically strong force, and its pilots and personnel may in time attain proficiency comparable to pilots of other Communist countries. Most of the light bombers are the BEAGLE jet model. Small propeller type transports and turboprop transports, however, have increased in number, and light helicopters have been added for use as search and rescue or utility aircraft.

As of 1 April 1966, it is estimated that CCAF personnel strength totaled about 76,500,* including 4,000 pilots, and aircraft strength in operational units was 2,641. The number of air regiments and aircraft, by role, were as follows:

AIRCRAFT ROLE	AIR REGIMENTS	AIRCRAFT
Jet fighter	65	1,985
Prop attack	1	40
Jet light bomber	8	151
Jet medium bomber	...	2
Prop light bomber	4	80
Prop medium bomber (BULL)	...	13
Turboprop medium transport	...	9
Prop light transport	5	*301
Helicopter	1	60
Total		2,641

* Includes an estimated 149 An-2 small propeller transports.

The older FAGOTS and FRESCOS are being replaced by more sophisticated jet types. On 1 April 1966, FAGOT/FRESCO jet fighters in the CCAF totaled 1,385, and there were 275 all-weather FRESCO Ds. In addition, there were 290 supersonic FARMERS and 35 FISHBEDS. The medium turboprop transports were COOTS and Viscounts. Light transports were CABS, COACHES, CRATES, C-46s, and C-47s. Each jet fighter regiment is estimated to have two or three aircraft assigned for training purposes. This does not include jet fighters assigned to organized air schools.

Detailed estimates of current and changing aerospace capabilities of Communist China appear in the *Asiatic Communist Aircraft Order of Battle* (U), AP-1-240-2-6 series, published by the Defense Intelligence Agency.

C. Doctrine of employment

1. General

Little is known about the Chinese concept of the application of air power. From the public speeches delivered by prominent officials of the regime, it can be concluded that the Chinese attach importance to their fighter and small bomber forces, but apparently do not believe that air power would be a decisive factor in any future war. They proclaim that the individual Chinese soldier, armed with "the thoughts of Mao" and dedicated to the Chinese Communist state, is the decisive weapon which will determine final victory. However, through 1964 and 1965, speeches in Peking by these same officials included references to some future date when Chinese strategic weapons will equal those of the United States and the Soviet Union. Also, there are good indications of a missile development program underway in China, and it is possible that the production of medium bombers may be attempted before 1970. This evidence points toward a recognition on the part of top Chinese officials of the importance of air power while the current propaganda belittling its effect is probably for domestic consumption to compensate for the obsolescence of their aircraft inventory.

Due to the nature of the Korean War and the types of aircraft delivered by the Soviets, the Chinese have generally been oriented in a defensive aerial posture. Approximately 75% of the aircraft inventory consists of jet fighters, and it is believed that the training in the fighter units is primarily intended to enhance their air defense capability.

The future of military transport aviation in Communist China is highly dependent upon Sino-Soviet relations. Since the start of the present period of coolness between these two Communist countries, China has received very few modern transports from the Soviet Union. At present, the COLT is the only known transport being produced in Communist China and facilities for production of larger types are not known to exist. However, it is conceivable that existing facilities could be converted within a reasonable period of time to produce a more appropriate type of transport aircraft, such as the CRATE. Although Communist China has procured six Vickers Viscounts from the United Kingdom and may seek further aid from that country and possibly France, quantitative Western procurement is open to question in light of present world tensions. If the Soviet Union continues supplying China with transport aircraft, it is probable that either the COOKPOT, COKE, and/or COOT will be obtained. The addition of these turboprop and medium jet transports to the Chinese Communist inventory would provide some relief to the overburdened and over-aged transport fleet.

2. Air doctrine

The Chinese undoubtedly have studied the Soviet strategy of preemptive attack, which states in part that it is necessary to be in constant and complete military readiness and be able to strike preemptive blows against an enemy preparing to attack, and that only by this means is it possible to prevent an aggressor's surprise attack.

Basic Soviet principals of employment, especially the principles of surprise, mass, mobility, flexibility, and annihilation can also be utilized by Chinese air strategists with suitable modification. In the light of the capabilities of modern weapon systems for both tactical and strategic use, surprise has been upgraded by the Soviets to a position of much greater importance. The Soviets have always favored mass in terms of numbers of fighting units, but developments in thermo-nuclear weapons

* In addition to air force personnel, there were 120,500 in air defense (AC&W, 45,000; AAA, 73,000; SAMs, 2,500) under air force control.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

- withdrawn

have made it possible to achieve the effects of mass with a relatively small number of weapons and aerospace delivery vehicles. Mobility has been a basic Soviet principal for many years and has been vigorously implemented in all branches of the armed forces. Flexibility in air tactics and use of equipment are important principles. Annihilation of the enemy retaliatory forces and, conversely, fear of annihilation by the enemy, have for many years been integral elements in Communist Party dogma.

Basic Soviet principles concerning nuclear, chemical, and biological warfare, along with the combined arms concept, probably have been taught to selected Chinese air officers by Soviet strategists.

3. Chinese Communist airpower development

a. GENERAL — The basic air doctrine of the CCAF is intended to support the grand strategy and national policy of the People's Republic of China. To this end, the Chinese doctrine resembles the air doctrine of the Soviet Air Forces and other major world powers. The basic concept behind development of Communist China's airpower differs from the buildup of Warsaw Pact air forces. Apparently, the aim is creation of a modern air force which, in cooperation with the large ground forces, will be capable of defending China and securing or threatening the non-Communist Asian regions. It is responsive immediately to the high political echelons of the government.

b. PRINCIPLES GUIDING CCAF DEVELOPMENT — In the development of Chinese Communist airpower, particular attention has been paid to the following principles of Soviet air doctrine:

Superiority—Immediate attainment of quantitative, and eventual achievement of a qualitative, superiority in personnel performance. This qualitative superiority, in the Communist viewpoint, refers to both the accomplishment of duties and maintenance of political orthodoxy.

Simplicity—Simplicity of training, procedures, and maintenance of equipment, as a means of promoting combat efficiency.

Mobility—A capability for the maximum possible mobility for fulfillment of the missions of airpower.

Flexibility—A capability for extremely flexible commitment.

c. PRIMARY CONCEPTS — In accord with the doctrine of employment, development of Chinese Communist airpower is directed toward creating a more balanced, modern, and qualitatively improved air force capable of performing the following missions:

Air defense—Improved fighter aviation acting as part of a modern air defense system, capable of neutralizing or minimizing air attack on the homeland, and performing air attack in or through a theater of operations wherever Chinese Communist forces are committed.

Strategic—Improved strategic airpower for conducting long-range air operations in the Asian area. This force would also, if and when military circumstances justify, have the capability of supporting theater-type operations.

Naval—Naval aviation for operations over coastal waters and in support of surface forces, with improved ASW capability.

Tactical—An improved modern air-ground force, ordinarily for commitment in theater-type operations for the execution of ground support, air interdiction, tactical bombing, escort, air reconnaissance, and air interception operations at low, high, and medium altitudes.

Airborne—A better airborne force capable of providing limited strikes under comparatively routine conditions and, eventually, the deployment of large forces for commitment under a variety of conditions.

d. DOCTRINE OF EMPLOYMENT — Communist China developed a general military doctrine several years ago that was different to some extent from that of the U.S.S.R. This early formulation of doctrine and strategy by Mao Tse-tung was in large part the result of experience gained in guerrilla operations and civil warfare prior to World War II. Mao believed that time and attrition tactics could be used to counter the enemy's technology. Unlike Western and Soviet doctrine, that of Mao did not necessarily concentrate on the problem of planning for an early decisive phase in war or of ending it quickly. A protracted war (primarily a land war with limited use of air power) was to be used to counter the enemy's technology. The protracted war was envisaged as being in three stages: 1) the period when the enemy is on the strategic offensive and the Chinese remain on the "strategic defensive"; 2) a stalemate during which the friendly forces prepare to seize the initiative; and 3) the period in which the Chinese Communists take up the strategic offensive to bring the war to a successful conclusion. This general strategy apparently is still used by Communists for limited objectives in southeast Asia, and it was largely successful in mainland China and in Indochina. Although Soviet military philosophy is now the predominant influence affecting Chinese concepts of air power employment, it is conceivable that in future circumstances Mao Tse-tung's doctrine might again govern China's actions during certain phases of both land and air warfare. The concepts of employment at this time are believed to be as follows:

Tactical—The basic tenets of Soviet doctrine in respect to tactical support of the ground forces have been adopted by the CCAF. The ground forces plan of battle should have a dominant influence on the manner of airpower commitment in a frontal situation, particularly when the lines are fluid. The CCAF follows the Soviet concepts of air superiority, of the concentration of air strength in the decisive zone of the overall battle, and of direct air support for the land forces. Variations that exist seem to spring from differences in proficiency and available equipment. Communist Chinese doctrine, like the Soviets', would envisage employment of airborne force in coordinated support of ground forces operation and airlift for guerrilla forces.

Strategic—The CCAF is the only Communist force outside the U.S.S.R. in which even a beginning has been made in the field of long-range airpower. Pending further development of this force, the doctrine of employment probably centers in striking strategic targets in the enemy's rear when such strikes would have an immediate effect on a frontal situation. The CCAF light bomber strength also could be employed where range and available weapons were such as to make the effort feasible.

Authority NND 45333
By JW NARA Date 9/2/10
ACCESS RESTRICTED
Withdrawn from this file:

Air defense—The basic Chinese Communist tendency is to employ the fighter-interceptor as the primary instrument of an area-type air defense, including the coordinated system of electronic and visual warning networks, antiaircraft artillery, surface-to-air missiles, and passive defense preparations. The organization of CCAF fighter operations for air defense follows the Soviet system of overall centralized control, but with sufficient authority delegated to permit units to handle local emergencies promptly. However, the CCAF does not follow the Soviet example of permanently subordinating certain fighter units to the air defense system alone; fighters are assigned as required on an emergency basis. In other respects the CCAF appears to emulate the Soviet air defense procedures. The CCAF and Soviet air defense systems are coordinated in contiguous areas, such as along the U.S.S.R.-Manchurian border.

Special weapons—CCAF doctrine involving the use of nuclear weapons, chemical agents, biological warfare, and guided missiles is not fully apparent. The Chinese Communists are much interested, although probably few, if any, special weapons are currently available to them. Only the implementation of the Soviet defensive doctrines with respect to these weapons has been noted.

D. Organization

1. Position in government and defense structure

Chinese Communist concepts of command and staff organization are a direct reflection of the almost exclusively ground force character of the origin and development of the Chinese Communist military establishment and Soviet influence predominating during the Korean War era. The senior military leaders who established and still control the command and administrative structure are essentially ground force officers by background and training. The military organization which they created is structurally a ground force, supported by relatively small air and naval components. The Minister of National Defense directly commands the People's Liberation Army. He exercises this command through the staff of the Ministry of National Defense. The main staff components are the three general departments—the General Staff Department, the General Political Department, and the General Rear Services Department—and the various headquarters of the more important arms, services, and special troops (FIGURE 2). The ministry staff controls the air and naval forces through an air force headquarters and a naval headquarters.

2. Air high command

a. GENERAL — Coordination of air and air defense matters is believed to be through headquarters of the CCAF in Peking. This headquarters has operational control of tactical air units and is believed to have some operational control of paratroops, the latter in close coordination with ground forces. Coordination of tactical air support of ground forces is effected through the aviation component of military regional headquarters. Aircraft, as well as surface-to-air missile, AAA, and AC&W units committed to the air defense role, are operationally subordinated to the Air Defense Command (ADC), with subordinate operational controls delegated to commanders of joint regional commands, which are called air

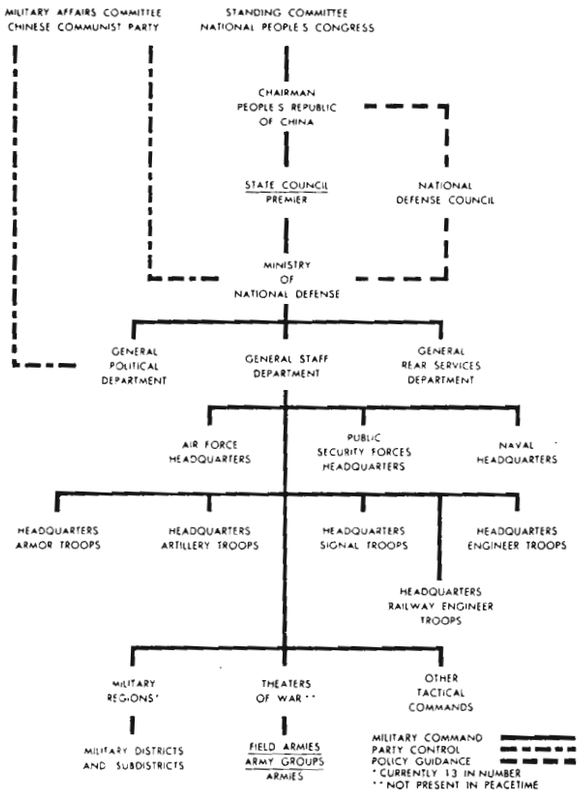


FIGURE 2. CHINESE COMMUNIST ARMED FORCES

defense districts by U.S. intelligence agencies. The mission of the ADC requires that it have delegated authority to react quickly and command all defensive aircraft within the several air defense districts. When necessary, the commander of the ADC exercises operational control over defensive air units of both the CCAF and CCNAF under a directive of the Minister of National Defense.

b. TOP-LEVEL ORGANIZATION — The commander of the CCAF has general operational and administrative control over all air units and installations (FIGURE 3). Other elements of the high command include a political commissar; deputies for air defense, combat training, rear services, and aviation engineering; a deputy (or chief) for airborne troops; and a chief of staff. The position of first deputy, whose identity and duties are not known, may be filled by the chief of staff.

The deputy for air defense is operational commander of the elements that are subordinate to the ADC and those that may be placed under ADC operational control, including surface-to-air missile, AAA, and AC&W. He is a member of the general staff of the combined arms of the Ministry of Defense.

Subordinate to the political commissar in CCAF headquarters are sections that deal with political affairs, counterintelligence, organization, and personnel. These sections are concerned with political activities within the air force, including indoctrination, counterintelligence and legal affairs, and a considerable portion of

Authority NND 45333
By JW NARA Date 9/2/10

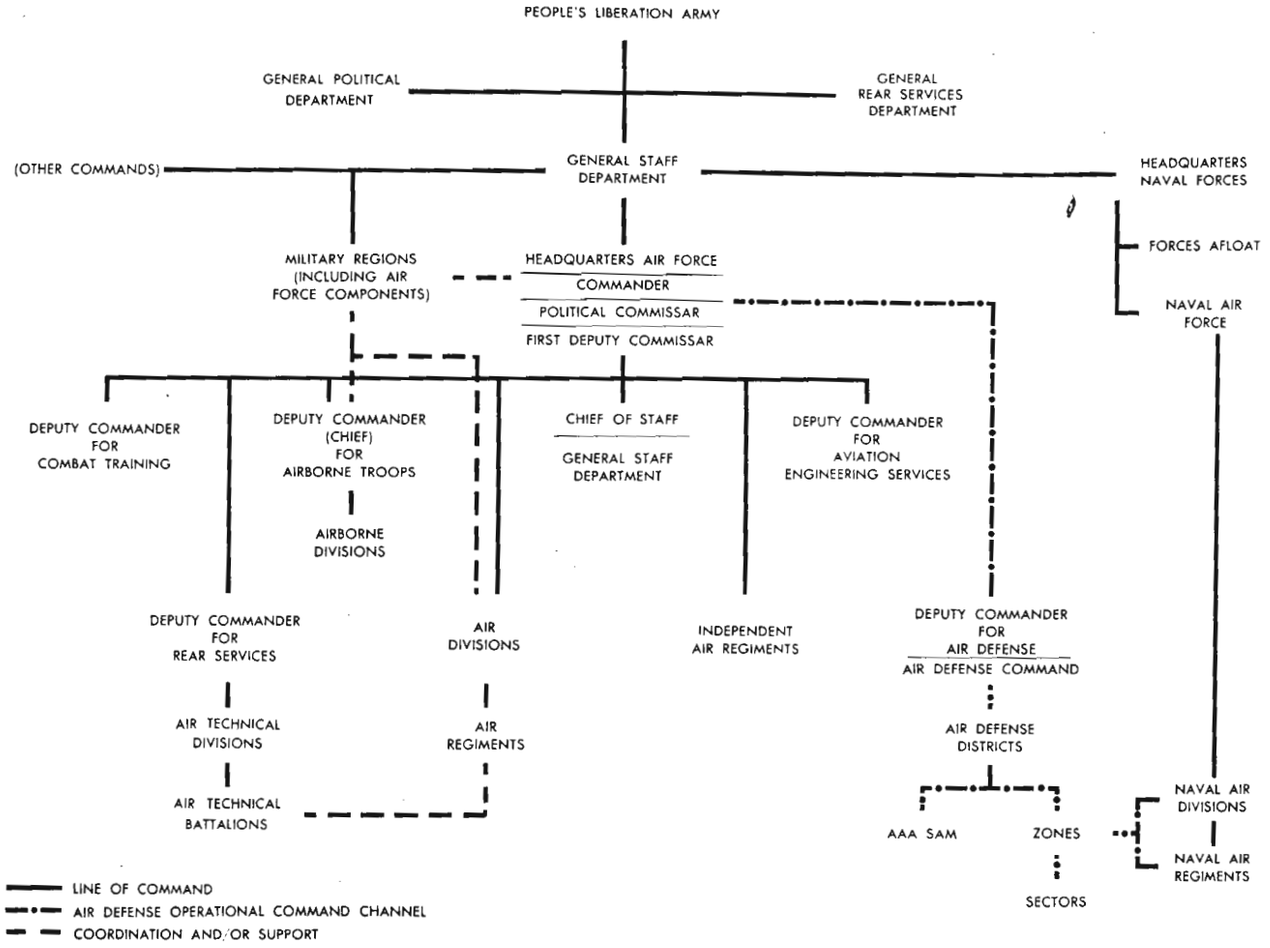


FIGURE 3. ORGANIZATION OF THE CCAF AND CCNAF

personnel administration, particularly with regard to Party members. At every level in the CCAF there are political officers who are subordinate to the political officers of the next higher echelon.

The chief of staff has subordinate sections responsible for operations, personnel, intelligence, communications, meteorology and air defense.

The deputy commander for rear services handles all procurement and distribution of supplies, and minor maintenance of airfields. Although the various sections responsible for particular functions have not been confirmed, there probably are sections for quartermaster; fuel, oil, and lubricants (POL); financial; air facilities; ammunition; and transportation matters. The medical section, headed by a chief medical officer, probably is a part of the rear services structure. This section is responsible for air force hospitals as well as supervision and control of doctors attached to air force units. The maintenance of air force dispensaries and hospitals and administration of medical services are accomplished by air technical battalions.

The deputy commander for combat training is responsible for all operational and preoperational training, both flight and ground. Subordinate to him are the combat training, chemical warfare, physical training, and educational institutes sections.

The head of aviation engineering services, probably also a deputy commander, is responsible for inspection of aircraft, spare parts and guns, and for the supervision and direction of aircraft repair facilities.

3. Major commands/components

a. OPERATIONAL COMMANDS — The Air Defense Command (ADC) is the only major operational command subordinate to the air force. Air defense operations are conducted through the eight (possibly nine) air defense districts and subordinate sectors (FIGURE 5). It is believed that the ADC is authorized to command naval air divisions when required for air defense purposes.

There is no organized tactical air command; tactical elements are directly subordinate to the commander of the air force. When committed to tactical and ground support roles, utilization of tactical aircraft is coordinated with ground units through territorial military regional commands and their subordinate military districts, each of which has an air force component.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

Information is inconclusive concerning the organization of airborne troop activities. These troops are believed to be administratively subordinate to ground arms and services, but operationally subordinate to the air force until they have been dropped for support of ground operations. According to the most reliable data available, paratroop activity was subordinated in the spring of 1952 to air force headquarters and was called the Air Force Ground Combat Command? There is probably joint high-level planning for employment of paratroops, with the air force charged with actual delivery. A deputy or chief for paratroop training and employment is probably assigned to air force headquarters.

b. Supply and servicing — Two organizations have primary responsibility for these functions—rear services and aviation engineering services.

The rear services organizations, believed to follow the Soviet pattern, provides logistical support and housekeeping services for operational aviation units; e.g., warehousing and supply of technical and nontechnical equipment, fuel, ammunition, communications facilities, housing and messing facilities, clothing, guard personnel, and administration of personnel matters. There is probably a rear services unit in the air force component at each military district headquarters. The next subordinate unit is probably the air technical division, which has subordinate air technical battalions attached to air regiments.

The aviation engineering services structure is responsible for the maintenance of aircraft and associated equipment. This function is accomplished primarily by stationary and mobile repair units. The former are directly subordinate to the deputy commander for aviation engineering services of the CCAF. Mobile repair units are attached to operational units. Small mobile units are attached to air regiments, and relatively larger ones to air divisions. Each air division, regiment, and battalion has a deputy commander for technical matters who supervises and directs maintenance inspection and repair operations. Each deputy commander for technical matters is operationally subordinate to his air unit commander and subordinate for technical matters to his superior counterpart in the higher echelon.

c. Training — The deputy commander for combat training is believed to control all phases of aviation training, including that given in aeroclubs. For discussion of the training system, see G. Training, below.

4. Composition of operational commands

a. Air divisions — The largest known operational units in the CCAF are air divisions, which are directly responsible to the commander of the CCAF. Air divisions—fighter, attack, light bomber, or mixed—normally consist of three regiments, although two regiments are not uncommon. Air divisions exercise both operational and administrative responsibilities.

The commander of the division is assisted by a deputy commander; a political commissar; the chiefs of aviation engineering, operations, training, and rear services;

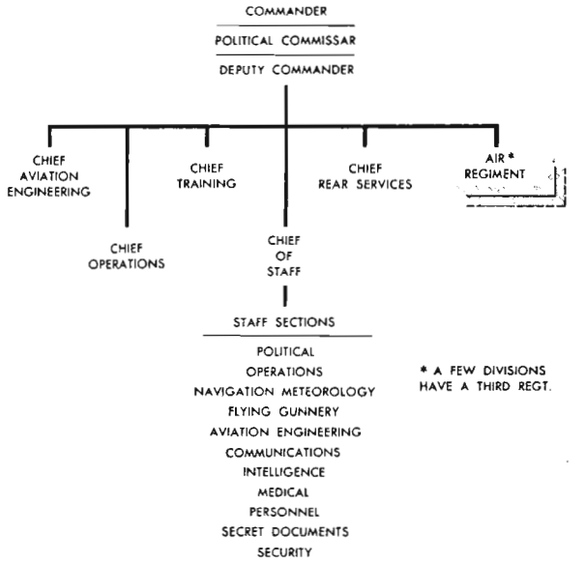


Figure 4. Headquarters, CCAF air division

and a chief of staff. He also has an assistant commander for combat training who, although not coequal with the chiefs, is directly responsible to the division commander (Figure 4).

At air division level, the political commissar exercises full personnel functions. The chief engineering officer has the status of duputy commander for technical matters. The rear services elements form a separate chain of command, and there is no deputy for rear services on the air division staff.

b. Air regiments — Air regiments, the next largest operational formations, are made up of three battalions. The regiment is of homogeneous aircraft composition with the exception of two or three liaison or training aircraft attached to regimental headquarters. The headquarters, includes a commander, deputy commander, political commissar, deputy commander for technical matters, and a chief of staff. Much of the administrative work for the subordinate battalions and companies is carried out by the regimental headquarters. The regiment also has assigned aircraft maintenance personnel, under the deputy commander for technical matters, to carry out maintenance beyond the capacity of mechanics assigned to each aircraft.

5. Territorial organization

For air defense purposes, China is divided into eight (possibly nine) air defense districts with subordinate zones and sectors (Figure 5).

The machinery for conscription and reserve programs and veterans affairs for all forces (including air) is administered through military regions, which have subordinate military districts. Headquarters for military regions and districts have air force components responsible for administrative matters relating to personnel, operations, training, and maintenance of air installations, and perform some coordination of operational matters

Authority NND 45333
By JW NARA Date 9/2/10

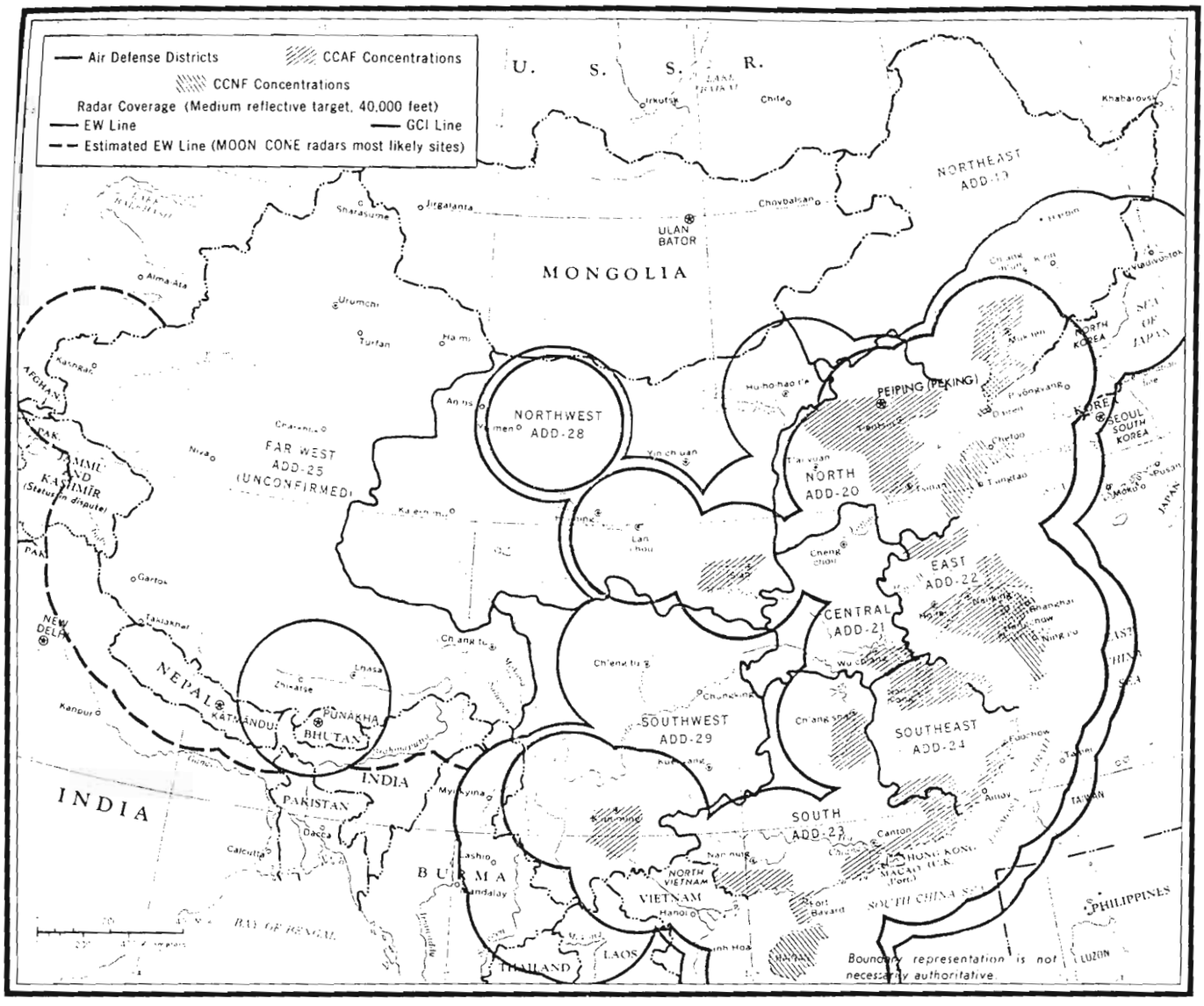


FIGURE 5. CHINESE COMMUNIST AIR DEFENSE DISTRICTS, AIR ORDER OF BATTLE CONCENTRATIONS, AND RADAR COVERAGE

when aviation units are required for tactical or ground support operations.

E. Operational system

1. Fighter forces

CCAF and CCNAF fighters could provide Communist China with a fairly adequate air defense during visual operating conditions. However, the Chinese could offer only token opposition to attacks during periods of inclement weather or during the hours of darkness, primarily because of the limited number of all-weather fighters and the scarcity of fully trained pilots. Raids composed of relatively few aircraft could conceivably be intercepted and destroyed by the Chinese fighter force, but it is doubtful if they could successfully defend against multiple raids or raids involving large numbers of aircraft attacking in a single corridor. This would be especially true if the raiding aircraft had covering fighters for protection en route to and from their targets.

All fighters of the CCAF and CCNAF are available for assignment to the air defense mission. Although naval aircraft normally are under operational control of naval air headquarters, they are assigned to the Air Defense Command when necessary.

Control of aircraft is delegated to the various air defense district headquarters. Both close control and broadcast control are provided to direct fighters into visual contact with the enemy. Once visual contact is established, the formation leader probably would assume control. However, during the isolated air battles of early 1960 over the Formosa Straits, it appeared that ground control agencies attempted to control the Chinese Communist aircraft even after visual contact was accomplished. This questionable procedure may help to account for the confusion of the Chinese pilots and their lack of organization in combat.

Recent exercises apparently have strengthened the CCAF defensive capabilities against both high and low altitude attacks. It is believed that the capability to

Authority NND 45333
By JW NARA Date 9/2/10

HDRAWAL NOTICE

thwart high altitude attacks would be considerably greater than the capability against aircraft attacking at altitudes of less than 5,000 feet. At night, searchlights and AAA are coordinated with fighter defensive measures. The searchlight and AAA units are utilized if the aircraft are unable to destroy the enemy at a precomputed distance from the most likely target.

2. Tactical and strategic bombers

The jet light bomber force could be deployed to airfields near the borders of the mainland, and it could conduct bombing missions to a radius of approximately 700 miles with external fuel. This radius of action could be increased by use of the BULL medium bombers, but their limited number and vulnerability to attack by jet fighters and surface-to-air missiles would make operational employment of doubtful value.

Communist China has jet light bombers (BEAGLE) and the piston medium bombers (BULL) for tactical/strategic bombing missions. The BULLS are obsolescent and would provide minimal support, but the jet BEAGLES must be seriously considered as support vehicles. Both day and night training has been accomplished as well as navigational flights in an effort to improve the proficiency of the BEAGLE crews. Although untested in combat, it is probable that this segment of the CCAF/CCNAF would be the most effective wartime element.

3. Air ground support

Attack aircraft have been reduced in numbers during the last few years, and training for air support of ground troops apparently now receives a lower priority. All Chinese Communist fighter aircraft are capable of performing ground attack missions, but their effectiveness would be marginal. With the advent and introduction of improved ground weapons for the support of the infantryman, it is logical to assume that the Chinese Communists have felt it prudent to train their pilots primarily for attainment of air superiority instead of ground support. The relatively small ground-support nucleus they continue to maintain would be adequate to assist in quelling local rebellions or "brush fire" wars, but it would fall far short of being adequate for any land campaign of major proportions.

It is likely that certain fighter regiments or units have been assigned ground-attack work as a secondary mission if they are not required for defensive interception or offensive air attack. However, it is not expected that such pilots would be as proficient as those especially trained in the skills required to successfully conduct close air-support missions for frontline troops.

4. Surface-to-air missiles, antiaircraft artillery, and early warning radar

The Chinese Communists have been developing a surface-to-air missile (SAM) capability for several years, based upon the Soviet SA-2 GUIDELINE missile and its associated guidance radar, FAN SONG. Only a small number of SA-2 sites currently are operational, and they would present a minimum threat against a modern offensive air force attacking in strength.

First evidence of the Chinese Communist program was obtained in October 1961, when three SAM sites were detected by collateral sources. GRC photography, in January 1962, detected a site at the Shuang-ch'eng-tzu Missile Test Center. The following June a second site was discovered at San-yüan, near Sian (Hsi-an) in the Yellow River Basin. The SAM positions at Shuang-ch'eng-tzu and San-yüan probably have training or developmental missions, or both, in addition to operational commitments. By the end of 1963 a total of about 10 sites had been built. As of 1 April 1966, the number had increased to 29 (including 2 R & D sites at Shuang-ch'eng-tzu); however, 10 of these had apparently been abandoned and dismantled.

Both permanent and temporary sites have been observed. These differ from each other mainly in quality of construction and number of launch positions. The permanent sites, such as those forming a rough circle around Peking, have well-prepared launch pads and revetments (according to Chinese Communist standards) and six launch positions. Although missiles, launchers, and guidance and other related equipment have not been seen on the permanent sites, the prepared positions can be manned and operational within hours.

SAM battalions probably are subordinate to the Chinese Communist Air Force and administratively controlled through the medium of air defense district headquarters. Operationally, missions probably are assigned by air defense zone headquarters with fire commands also issued at this level. Personnel strength of the Chinese Communist SAM battalion is estimated to be 25% more than the Soviet strength of approximately 125-130 because of the Chinese extravagant use of manpower. From the apparent policy of abandoning sites and the ragged, temporary character of approximately half the launch facilities, the inference may be drawn that the Chinese Communists probably emphasize mobility in missile deployment. This policy probably developed as a result of limited SAM resources and is based on attempts to predict flight paths of intruder aircraft.

The SAM sites may not reflect total Chinese Communist surface-to-air resources. With the four-pad temporary site, the Chinese Communists demonstrate a tendency to modify the original Soviet configuration to suit their own purposes. Historically the Chinese Communists have displayed talent both for field modification of weapon systems and for the art of camouflage. Considering the need for antiaircraft missiles throughout mainland China, there may be further modification of SAM-site design to afford smaller, heavily camouflaged positions at strategic installations and at locations designed to maximize the air defense posture.

Most of Communist China's AAA units are subordinate to the CCAF for use within the air defense system. Other AAA units are subordinate to the Chinese

[illegible] and light bomber aircraft. The

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

Communist Army (CCA), which is organized into 13 military regions further subdivided into military districts. It is believed that CCAF or CCA AAA units at or near naval establishments may come under the operational control of the Chinese Communist Navy (CCN), but it is not known to what extent individual service identities are maintained. The AAA forces of Communist China consist of an estimated 17 CCAF AAA divisions, 6 CCA AAA divisions, up to an estimated 30 CCAF independent AAA regiments, and 125 AAA battalions organic to CCA line or combat support divisions (FIGURE 6).

A typical CCAF and CCA AAA division consists of three regiments—one light and two medium. The light regiment generally consists of five 4-gun batteries equipped with 37- and 57-mm guns. Medium regiments have four 4-gun batteries with 85- and 100-mm guns. This gives the division a total of 20 light and 32 medium guns. Some CCAF independent AAA regiments have nine 4-gun batteries with a total of 36 medium guns. It is believed that some unidentified CCAF AAA divisions are constituted with three 36-gun medium regiments. Infantry division AAA battalions contain three 4-gun batteries with a total of 12 light guns. The foregoing AAA units may be supplemented with AA machinegun (automatic weapon) batteries.

Communist China's antiaircraft artillery defenses are mainly distributed along the east coast from Hainan Island to the Korean border. Somewhat reduced, but still heavy AAA concentrations, protect important coastal airfields and military areas opposite the Nationalist Chinese held island of Taiwan. Other significant AAA defenses are located in southwest China near the North Vietnam border and at selected cities, airfields, military installations, and strategic production areas throughout the country. It is estimated that Communist China has a total of 3,600 AA weapons (excluding AA machineguns) of which 2,000 are light (37- to 57-mm) and 1,600 are medium guns (85- to 100-mm). Over half of these weapons consist of the older 37-mm and 85-mm AA guns. The characteristics of AA weapons are shown in FIGURE 7.

Typical AAA batteries are deployed around or near a defended installation in groups of four weapons, but reports of six and eight guns are not uncommon. AA guns are generally situated on flat, even ground or, if advantageous, on higher ground, ridges, and sides of hills, depending on defense objectives and local terrain. AAA sites are usually accessible to roads or trails. The 57-mm and larger caliber AA guns are provided with a fire control radar of the WHIFF or FIRECAN type. Light AA guns and AA machineguns may be collocated with surface-to-air missile sites.

FIGURE 6. DEPLOYMENT OF CHINESE COMMUNIST AAA UNITS

UNITS	AIR DEFENSE DISTRICTS									UNLOCATED	TOTAL
	Northeast	North	Central	East	South	Southeast	Far East	Northwest	Southwest		
CCA AAA divisions	1	...	...	1	...	3	...	...	...	1	6
CCAF AAA divisions	2	1	...	...	10	...	...	2	1	*1	17
CCAF independent AAA regiments	4	3	1	11	2	2	...	1	1	5	**30
CCA AAA battalions	29	28	7	19	16	9	2	3	11	1	125

* Division with identified headquarters element but unlocated regiments.

** It is possible that some of the independent regiments are organized as additional AAA divisions.

FIGURE 7. CHARACTERISTICS OF CHINESE COMMUNIST ANTIAIRCRAFT GUNS

NOMENCLATURE	MAXIMUM RANGE		MAXIMUM EFFECTIVE AA RANGE	WEIGHT OF PROJECTILE	PRACTICAL RATE OF FIRE	MUZZLE VELOCITY	TRAVERSE	ELEVATION LIMITS	WEIGHT
	Horizontal	Vertical							
	yds.	*ft.*	*ft.*	*lbs.*	*rds. per min.*	*ft. per sec.*	*deg.*	*deg.*	*lbs.*
Quad 12.7-mm Heavy Machinegun	6,500	14,436	*est* 3,300	0.10	100 (per gun)	2,822	360	0+90	1,411
14.5-mm ZPU-2 and ZPU-4 Machinegun	7,650	14,750	*est* 4,600	0.14	150 (per gun)	3,281	360	0+90	4,400, ZPU-4; 838, ZPU-2
37-mm Gun M 39	8,752	19,685	5,600	1.6	80	2,887	360	−5+85	4,600
57-mm Automatic Gun, M1950	13,120	28,873	*13,120–**19,700	6.18	70	3,280	360	−4+87	10,800
85-mm Antiaircraft Gun, M1938	16,950	34,450	27,500	21.1	15–20	2,625	360	−3+82	9,480
100-mm Antiaircraft Gun	23,000	50,500	39,000	35.0	15	2,950	360	−3+85	20,800

* With on-carriage fire control.

** With off-carriage fire control.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

The Chinese Communists have continued to deploy larger numbers of radar sets and to strengthen and upgrade the capabilities of their radar net. The Chinese radars are obsolescent in design, but are rugged and serviceable. They are used to form the nucleus of a workable early warning system. The Chinese can be expected to continue to upgrade their radar production capability in the future.

The Chinese are apparently improving their radar production capability in an effort to lessen their dependence on Soviet-built equipment. With the production of two native design early-warning (EW) radars, the Chinese have succeeded in increasing their self-sufficiency in providing radar equipment for their early warning and coastal defense system. The Chinese-designed and -produced radar which has the greatest capability is the MOON CONE, a VHF radar which has been widely deployed in China. A second Chinese-produced radar, which has an extremely important role in the early-warning and coastal defense system, is the CROSS SLOT, an S-band radar which has been extensively deployed. The appearance of two electronically distinguishable variants of the SCR-270, an early-warning radar, has led to the estimate that the Chinese are producing replacement components for these Chinese copies of World War II U.S. radars. These replacement units may include modifications to improve the performance of the equipment.

As of 1 April 1966, there were 451 early-warning radars in the Chinese air defense system (FIGURE 8). Included in this total are 224 of the older SCR-270 and Tachi-18 radars, 56 MOON CONES and 105 CROSS SLOTS of relatively recent Chinese manufacture, 65 Soviet KNIFEREST family radars, and 1 FLAT FACE. Of these radar types, the MOON CONES are primary early warning radars. The CROSS SLOTS are used for coastal surveillance, and the KNIFERESTS, SCR-270s, and Tachi-18s are used for back up and gap fillers. The Chinese early-warning network is credited with a 250-nautical mile detection capability for areas along the coast. In other areas of the country, which have been given less priority, the SCR-270 retains the role of the primary EW radar with consequent reduction of EW range. The early-warning system is believed to be supplemented by a passive detection net which is estimated to have a range of 400 nautical miles for radar missions from aircraft at 40,000 feet and much greater range for HF radio transmissions.

For height finder radars, the Chinese are still totally dependent on Soviet equipment. The only height finders deployed in China are the Soviet ROCK CAKE/STONE CAKE. As of 1 April 1966, there were 57 of these radars active in China. The great majority of these are positioned so as to provide ground controlled intercept (GCI) coverage in the coastal provinces and off shore. The majority of these height finders are collocated with 62 TOKEN and 22 BIG MESH Soviet radars, which possess a GCI capability because of their V-beam design enabling them to determine an approximate target altitude. In addition, some of the older Soviet radars of the KNIFEREST family possess the capability to make a gross estimate of target altitude. It is also possible that the Chinese may have added this capability to some of their SCR-270 radars.

The Chinese Communist GCI equipment is deployed to provide solid coverage along the coast; coverage is estimated to extend approximately 175 nautical miles seaward. In addition, military targets and important cities in the interior of China are provided with GCI protection. It is believed that the Chinese have recently increased their GCI capability along the border with North Vietnam to protect against the increased possibility of border violations or attacks associated with the Vietnam conflict. The Chinese GCI system is effective within the realm of its limited capabilities. A favorable aspect of the system is the mobility of the equipment available, resulting in the possibility of a rapidly improved GCI capability where there is a necessity for it. The GCI system has its greatest limitations in the shortage of radar and communications equipment and vulnerability to electronic countermeasures (ECM).

FIGURE 8. EARLY WARNING AND GROUND CONTROLLED INTERCEPT RADARS DEPLOYED IN COMMUNIST CHINA, 1 APRIL 1966

EQUIPMENT	AIR DEFENSE DISTRICTS									TOTAL
	North-east	North	Central	East	South	South-east	Far West	North-west	South-west	
MOON CONE*	11	7	0	12	19	4	0	1	2	56
CROSS SLOT*	8	15	0	31	29	22	0	0	0	105
SCR-270 and Tachi 18*	11	26	9	45	62	54	1	2	14	224
KNIFEREST, DUMBO, Rus II*	1	13	1	14	22	10	0	0	4	65
FLAT FACE*	0	1	0	0	0	0	0	0	0	1
ROCK/STONE CAKE**	5	10	1	13	15	11	0	0	2	57
BIG MESH***	3	8	1	1	5	1	0	3	0	22
TOKEN***	7	10	2	11	10	17	0	1	4	62
Total	46	90	14	127	162	119	1	7	26	592

* Early warning.

** Height finders (associated with GCI).

*** Ground control intercept.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

COPIES/PPS

The small number of height-finder radars available limits the extensiveness of GCI coverage. In the field of communications, the Chinese are estimated to use manual data-handling processes and outmoded communications equipment. This significantly limits the number of targets that can be handled simultaneously by the air defense system and increases vulnerability to mass penetrations.

All radars currently in use by the Chinese are relatively unsophisticated in design and are estimated to be vulnerable to commonly used ECM equipment. The Chinese are expected to continue to improve the capability of their GCI system. To do this significantly, it will be necessary for them to increase the number of available height-finder radars. In this connection the Chinese may be expected to attempt the design and production of their own height finders. In addition, communications equipment probably will receive high priority. The Chinese are not estimated to have the capability to produce in quantity highly sophisticated communications equipment. The deployment of more height finders would allow the extension of GCI coverage, and more communications equipment could increase the target handling capability of the air defense system. It is not expected that the Chinese will produce spectacular improvements in their GCI system in the near future, but some upgrading of system coverage and capability probably will occur.

Although the Chinese have concentrated the bulk of their radar capability in the coastal regions, they are expected to show further interest in upgrading their capabilities along the southern borders. Nine confirmed radars have been deployed along a portion of the border with Burma and Laos. There is one confirmed radar located at Gyangtse in Tibet. In addition, it is estimated that several additional radars have been deployed along the Indian and Kashmīr borders, but this has not been confirmed. The estimated early warning line, shown on FIGURE 5, is based on deployment of MOON CONE radars in the area. The Chinese are not known to have any GCI capability in this region, but increased availability of GCI radars would enable them to provide this coverage. It must be remembered, however, that in event of an emergency involving the Indian border or any other area of the country, the Chinese are capable of deploying the necessary EW or GCI radars in a relatively short period of time.

The most important Chinese antiaircraft fire control radars are the FIRE CAN and the WHIFF. As of 1 April 1966 there were 12 FIRE CANS, 12 WHIFFS, and 4 Tachi 1 fire control radars confirmed active in China (FIGURE 9). All three of these radar types are known to be extremely vulnerable to ECM equipment now in general use. The FIRE CAN possesses some advantage with its ability to shift operating frequencies rapidly, but this is now largely made obsolete by modern ECM equipment. The Tachi 1, usually used to direct searchlights, is considered obsolete. Larger numbers of fire control radars are estimated to be available in China, and the mobile nature of this equipment allows rapid deployment when necessary. The Chinese are known to have four FAN SONG A/B surface-to-air missile control and guidance radars deployed. One is located in the Peking area. The other three are located at San-yüan and Chung-wei, near the Shuang-ch'eng-tzu Missile Test Range and at Ta-chia-pao near the city of Lan-chou. Recent indications are that FAN SONG radars have also been deployed in south China. Two SHEET BEND radars are confirmed active at Lien-shan, in northeast China. These radars normally act as acquisition radars for a Soviet-made surface-to-surface coastal defense missile system, which is estimated to have been deployed along the Chinese coast.

5. Selected aircraft performance data and characteristics

FIGURES 10 through 14 show selected performance and characteristics of significant bomber, fighter, and transport aircraft. Characteristics of other Soviet aircraft are described in NIS 26, SECTION 83.

FIGURE 9. ACQUISITION, FIRE CONTROL, AND MISSILE CONTROL RADARS DEPLOYED IN COMMUNIST CHINA, 1 APRIL 1966

EQUIPMENT	AIR DEFENSE DISTRICTS									TOTAL
	North-east	North	Central	East	South	South-east	Far West	North-west	South-west	
FIRE CAN*	1	1	0	3	4	3	0	0	0	12
WHIFF*	0	2	0	2	2	6	0	0	0	12
Tachi 1*	0	1	1	0	2	0	0	0	0	4
FAN SONG A/B**	0	1	0	0	0	0	0	3	0	4
SHEET BEND***	2	0	0	0	0	0	0	0	0	2
Total	3	5	1	5	8	9	0	3	0	34

* Fire control.
** Missile control.
*** Acquisition.

Authority NND 45333
By JW NARA Date 9/2/10

FIGURE 10. ESTIMATED CHINESE COMMUNIST BOMBER PERFORMANCE SUMMARY—OPTIMUM MISSION

AIRCRAFT	NORMAL GROSS/ TAKE-OFF WEIGHT	SEA LEVEL TAKEOFF DISTANCE: GROUND RUN/CLEAR 50-FOOT OBSTACLE	COMBAT RANGE	COMBAT RADIUS	TARGET SPEED/MAX. SPEED 35,000 FT.	TARGET ALTITUDE	BOMB LOAD
	lbs.	*ft./ft.*	*n. mi.*	*n. mi.*	*kts./kts.*	*ft.*	*lbs.*
BEAGLE (Il-28).....	51,000	5,350/9,000	1,000	550	410/460	34,800	6,600
BULL (Tu-4).....	140,000	5,230/7,825	3,025	1,563	223/347	30,000	10,000

FIGURE 11. CHINESE COMMUNIST BOMBER ARMAMENT

AIRCRAFT	GUNS	LOCATION	RATE OF FIRE PER GUN	AMMUNITION PER MISSION		BOMB LOAD; NORMAL/ MAXIMUM	MISSILE (AIR TO SURFACE)
				Rounds carried	Seconds of fire		
			rds. per min.			*lbs./lbs.*	
BEAGLE (Il-28).....	4 23-mm.....	2 in nose..... 2 in tail.	800	Nose 200..... Tail 450.....	6.66 15.0	4,400/6,600	*None.*
BULL (Tu-4).....	10 12.7-mm..	Four turrets: Upper forward. Lower forward. Lower rear. Tail turret.	800	4,000.....	30.0	10,000/20,000	*None.*

FIGURE 12. ESTIMATED CHINESE COMMUNIST FIGHTER-INTERCEPTOR PERFORMANCE SUMMARY—OPTIMUM AREA INTERCEPT MISSION

AIRCRAFT	RADAR EQUIPMENT	NORMAL GROSS TAKEOFF WEIGHT	COMBAT RANGE/ RADIUS	SPEED: COMBAT/ALT.; MAX./ALT.	COMBAT CEILING	TIME TO CLIMB TO 40,000 FT.
		lbs.	*n. mi./n. mi.*	*kts./ft.*	*ft.*	*min.*
FAGOT (MiG-15).....	...	12,600	1,120/575	505/49,000; 530/35,300	49,900	9.9
FRESCO A, B, E (MiG-17)..	A and B, range only; E, search-track.	13,180	1,060/540	535/48,800; 545/36,000	52,200	11.4
FRESCO C, D (MiG-17)....	C, range only; D, search-track.	13,400	970/510	550/48,300; 560/36,000	54,500	11.8
FARMER A (MiG-19).....	A, C, and D, range only; B and E, search-track.	19,500	1,000/520	750/42,200; 765/33,000	53,800	7.0
FISHBED C/E (MiG-21)...	Range only.....	17,300	850/450 1 ext. tank	1,140/60,500; 1,150/60,000	60,500	15.2

Authority NND 45333
By JW NARA Date 9/2/10

- HDRAWAL NOTICE

FIGURE 13. CHINESE COMMUNIST FIGHTER ARMAMENT

AIRCRAFT	GUNS	LOCATIONS	RATE OF FIRE PER GUN	AMMUNITION PER MISSION/ SECONDS OF FIRE PER GUN	BOMBS	ROCKETS	MISSILE (AIR TO AIR)
			rds. per min.				
FAGOT (MiG–15)	2 23-mm 1 37-mm	Gun pack in forward fuselage.	800 400	160/6 40/6	2 550-lb. (1 ea. wing).	16 57-mm AAR (2 wing pods). 2 210-mm ASR 2 325-mm AAR 2 220-mm AAR	*None.*
FRESCO A and B (MiG–17)	2 23-mm 1 37-mm	...*do*.....	900 400	180/6 40/6	....*do*.....	16 57-mm AAR (2 wing pods). 2 210-mm ASR 2 325-mm AAR 2 220-mm AAR	*None.*
FRESCO C.....	2 23-mm 1 37-mm	...*do*.....	900 400	180/6 40/6	....*do*.....	48 57-mm AAR (4 wing pods). 4 210-mm ASR 4 220-mm AAR 4 325-mm AAR	*None.*
FRESCO D and E (MiG–17)	3 23-mm	...*do*.....	900	240/7.5	....*none*.....	(Same as FRESCO C).....	4 AA–1
FARMER A (MiG–19)	2 23-mm 1 37-mm	In wing roots. In forward fuselage.	900 500	160/5 50/6	2 500-lb. (1 ea. wing).	64 57-mm AAR (4 wing pods). 4 210-mm ASR 4 325-mm AAR 4 220-mm AAR	2 AA–2
FISHBED C/E (MiG–21)	1 30-mm	Forward fuselage...	700	60/5.2	2 1,100-lb. or 2 500-lb. or 2 500-lb. and 1 1,100-lb.	32 57-mm AAR (2 wing pods).	2 AA–2

NOTE The Soviet-designed aircraft are capable of carrying all the advanced weapons shown. The Chinese Communist aircraft are not believed to be currently so equipped.

FIGURE 14. ESTIMATED CHINESE COMMUNIST TRANSPORT/CARGO AIRCRAFT PERFORMANCE SUMMARY—BASIC MISSION

AIRCRAFT	MAXIMUM WEIGHTS: GROSS/CARGO	RANGE/RADIUS	AVERAGE CRUISE SPEED	AVERAGE CRUISE ALTITUDE	TROOP CAPACITY
	lbs./lbs.	*n. mi./n. mi.*	*kts.*	*ft.*	
CAB (Li–2).....	25,300/6,600	1,200/530	130	13,000	25
COLT (An–2).....	11,600/2,750	930/380	100	5,000	10
COOT (Il–18).....	141,000/33,000	3,400/1,600	325	30,000	111
CRATE (Il–14)*.....	26,300/8,100	1,600/720	130	11,500	24
Viscount.....	72,500/14,500	1,530/790	310	20,000	70
C–46.....	55,000/14,900	977/500	145	5,000	50

* COACH (Il–12) was deleted from the table because COACH and CRATE can be considered identical; the differences are small.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

HDRAWAL NO

F. Personnel

1. Procurement

From the establishment of CCAF headquarters in 1949 until 1955, personnel were procured directly from the ground forces or through a system of volunteer recruitment that more often than not used political, social, and economic pressures to encourage enlistment. In July 1955 the Military Service Law was instituted whereby personnel were conscripted for all branches of the People's Liberation Army (PLA). Under this law registration for the PLA was made mandatory for all youths upon reaching the age of 18; however, due to the vast manpower of Communist China, only a few of those eligible are actually called.

Quotas probably are established by the general staff in the Ministry of Defense on recommendation of headquarters of the CCAF and CCNAF and are approved by the Minister of Defense and State Council. Orders then are issued by the Ministry of Defense to headquarters of military regions to implement conscription of personnel for the armed forces. Representatives from the air forces screen persons at the military conscription bureaus located in each county and municipality in order to select the most likely for assignment to the CCAF or the CCNAF.

Persons may apply for assignment to the air force or other services and, although there are criteria for selection, specific details are not known. The first criteria, however, is political reliability, and those selected for pilot training are required to have membership in the Youth Corps or Communist Party. Persons who appear to have the aptitude, intellectual capacity, and other requirements for training as pilots or for technical specialists are selected from those already in the air or ground forces, and from students in middle schools (high schools) and universities. Officer personnel are obtained by commissioning NCOs who have had special training and have passed examinations, personnel graduated from service schools, and personnel who have received military training while students at universities.

Women in the CCAF usually are obtained through voluntary enlistment. Women students are not required to take military training, but may take certain courses to prepare for examinations as junior officers. Women between the ages of 18 and 40 with medical, veterinary, or other special technical training may be registered for reserve service and may be conscripted in wartime for active service; some also serve as pilots of fighter and transport aircraft and as technical instructors in communications.

2. Conditions of service

a. Terms of service — The legal obligation for compulsory service extends to age 40 for conscripts. Under the Military Service Law of 1955, the terms of peacetime obligated service was fixed at 3 years for the ground force, 4 years for the air force, and 5 years for the navy. On 19 January 1965, the Standing Committee of the National People's Congress announced the extension of these terms of service to 4 years for infantry troops; 5 years for other ground troops, air force, and shore-based navy; and 6 years for shipboard naval personnel. The armed forces reserve the right to change the period of service or to transfer servicemen from one branch to another should circumstances so dictate. Provision has also been made for personnel to voluntarily extend their term of active service by periods of a year or longer, current military needs permitting.

b. Pay and allowances — Prior to the abolition of personal ranks on 1 June 1965, pay was based primarily upon rank and grade. Since that time, pay is based on the position held, rather than on rank, and length of service, augmented in some cases by the provision of food, clothing, and bedding.

The existing pay structure, however, probably is comparable to the previous system. Estimated monthly pay for the former ranks and grades, in U.S. dollar equivalents, was as follows:

Major general to senior general	162.00–244.00
Major to senior colonel	50.00–138.00
Second lieutenant to senior captain	26.00–49.00
Warrant officer	23.00–25.00
Noncommissioned officer	4.00–6.00
Recruit and private, first class	2.50

An additional category of pay for qualification is reported to have been established for military instructors in military schools and for military professors, instructors receiving an additional 5% of basic pay and professors, 10%. Additional provisions have been made for financial and medical support of dependents of servicemen and demobilized personnel. Provision has also been made for dependents of servicemen who have died on active duty and for servicemen injured while in the armed forces. Discharge allowances based on military position or class are paid demobilized personnel. Provisions are made also for clothing traveling expenses, and the monthly service allowances due at time of discharge.

c. Food, clothing, and housing — Officer personnel may provide their own food or have deducted from their pay a certain amount each month when they use messing facilities on base. A deduction is also made from the pay of senior NCOs, but conscripts are given their meals. The food (rice, noodles, maize, cabbage, beans, turnips, or bean curds, and occasional meat) is sufficiently nutritious and probably is more abundant than conscripts received as civilians.

Clothing, although severely rationed, is issued to all personnel. Officers, however, may have to procure some items, and officer clothing probably is renewed with more frequency.

A large-scale program was initiated during the past few years to construct barracks, and extensive military

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

camp construction also was begun. New camps have been confirmed in southeastern China, and there are probably others in the northeastern area. Those observed vary from platoon size to encampments large enough to quarter divisions. The barracks are apparently permanent structures; some have central heat, indoor latrines, and comfortable furniture. Gymnasiums or auditoriums have been reported in some camps. There appears to be some standardization in specifications and construction materials, influenced somewhat by the area of China in which they are located. The military housing program is a considerable improvement toward modernization of the armed forces and can be expected to improve health, sanitation, and morale.

3. Characteristics

The Chinese are physically tough and accustomed to deprivation and hardships, a condition which enables them to adjust readily to the physical environment of the armed forces. Widespread illiteracy was one of the greatest deterrents to training programs, but educational programs are believed to have improved this condition. Sufficient personnel have now been educated to the level that special training courses can be assimilated rapidly enough to provide a steady flow of personnel to fill aviation manning requirements. Data are not available to show the effect on training and integration into forces of persons coming from different regions where many different dialects are spoken. However, a program underway to simplify the Chinese characters and probably to develop usage of some common dialect can be expected to expedite unity and to dispel some feelings of regionalism. The strong measures taken by the Communist Party in China have considerably weakened the traditional family relationships.

4. Morale factors

Morale among personnel of the CCAF probably varies considerably, depending on the service status of individuals. The conditions of service generally are so much more favorable for aviation personnel than those for ground forces personnel (except those in technical specializations or of high position) or for civilian personnel that there is a fairly satisfactory morale level. However, long separations from families and concern for their welfare, the incessant political training which is dull to most individuals, factionalism, and some disillusionment as to operational effectiveness are debilitating influences.

There is little doubt that morale reached a low ebb in 1958-61. At that time, official measures of long-term duration were taken for improvement. This was called a morale rectification program designed to remove factionalism, to elevate ideological goals of the Communist Party over personal aspirations, to improve proficiency levels through educational programs at all levels, and to improve upon the fraternization between officers and conscripts. The fraternization program created some disciplinary problems for officers.

5. Selected personalities

a. Biographic sketches

WU Fa-hsien (0702/3127/2009), Lieutenant General,* Commander of the CCAF—Wu, born in 1912 in Kiangsi Province, is a middle school graduate and is active in Party affairs. He is first noted as serving in the Communist North Kiangsi Administrative District in 1942. Later he was a division political commissar in the New 4th Army. In 1950 he was the director of the political department of the Kuangsi Military District and concurrently a member of the Kuangsi Provincial People's Government. He subsequently was promoted to Political Commissar of the Kuangsi Military District. In 1951 he relinquished all other duties to serve as deputy political commissar of the CCAF. Wu's next prominent appearance was in a civil air role. On 28 December 1954 he was the chief representative of Chinese civil aviation in welcoming a U.S.S.R. civil aviation delegation at a Peking airport. On 30 December he participated in a stockholders' conference as a member of the Sino-Soviet Civil Aviation Corporation committee; and in Peking on the same day, as chief of the Chinese delegation, he signed a Sino-Soviet scheduled aviation service agreement. In October 1955 Wu headed a Chinese Communist delegation that negotiated the Burma air transport agreement. More recently Wu's public activities have been primarily of a political nature. He opened the PLA air force activist conference in Peking in December 1958, and he attended the 2d National People's Congress in Peking in April 1959 as an air force delegate. He was reelected to the 3d National People's Congress in December 1964. In September 1955, Wu received China's three highest military decorations—Order of August First, First Class; Order of Independence and Freedom, First Class; and Order of Liberation, First Class. Wu did not appear for the award ceremony. In 1957 Wu was promoted to Political Commissar, CCAF. In 1965 he was appointed a member of the National Defense Council, a significant honorary post. In August 1965, General Liu Ya-lou who had commanded the air force since its inception, died, and Wu was appointed Commander, Chinese Communist Air Force. Wu's wife's name is Ch'en Su-yi.

T'ANG T'ien-chi (0781/1131/7139), Lieutenant General, Political Commissar of the Air Defense Command—T'ang was born in 1904 in Hunan Province. He is a middle school graduate and a graduate of Whampoa Military Academy. During the period from 1926 to 1938 T'ang served with various army units in the Red provinces, primarily as a political officer. In 1942 he reportedly commanded a unit in the 8th Route Army, and in 1946, a military subdistrict of the Shansi-Hopeh-Shantung Military District. In 1949 he was a member of the Hunan People's Military and Administrative Committee, Deputy Political Commissar of the Hunan Military District, and Political Commissar of the Wuhan Garrison Headquarters. In 1950 and 1951 he reportedly was Political Commissar of both the XII and XXI Army Groups. From 1952 to 1954 he served as Deputy Director of the Department of Financial and Economic Affairs and Director, Department of Building Construction, Central-South Military and Administrative Committee. In 1953 he was also identified as Political Commissar of the Air Defense Command. In 1955 he was awarded the Order of August First, the Order of Independence and Freedom, and the Order of Liberation, all First Class. From 1957 to mid-1965 T'ang served as Deputy Director, General Rear Services Department, PLA. In 1959 he was elected to the 3d Chinese People's Political Consultative Conference and also elected to the standing committee of the same. In mid-1965 T'ang was again appointed Political Commissar to the enlarged Air Defense Command. T'ang has little experience in conventional military

* Although ranks were abolished in Communist China on 1 June 1965, the last known ranks of the top level CCAF personnel have been included as a basis for determining the relative importance of the various individuals.

DECLASSIFIED
Authority NND 45337
By JW NARA Date 9/2/10

matters but long political experience with the armed forces. Although he was highly regarded by the leadership in the Kiangsi Chinese Soviet District, his capabilities are said to be only average.

CH'ENG Chun (2052/6874), Lieutenant General, Deputy Commander, Air Defense Command, CCAF—Ch'eng is of particular interest because Yang Ch'eng-wu (2799/2052/2976) was last identified as Commander, Air Defense Command, in 1957. Yang is now serving on the General Staff of the People's Liberation Army and Ch'eng Chun may now be the actual commander of the air defense forces. Ch'eng has been an active CCP member and rose through the ranks. He was a brigade commander of the 4th Route Army in 1944, and in 1946 was promoted to command of the 7th Column operating in Central China. Early in 1949, after the reorganization of the Chinese Communist forces, he was appointed to the command of the 25th Army within the 3d Field Army. In 1951 he became deputy commander of the 10th Army Group, and also deputy commander of the Fukien Military District. In 1955 he assumed his present position and was promoted to the rank of Lieutenant General in the CCAF. In recent years Ch'eng has been reported in the Hong Kong press as a member of a military goodwill mission to India in January 1958 and as a PLA deputy elected to the 2d National People's Congress in November 1959. Ch'eng was re-elected to the 3d Session, NPC in December 1964. He has been awarded the Order of Liberation, First Class.

CHUNG Ch'ih-ping (6945/6375/0365), Lieutenant General, Deputy Commander, CCAF—Chung may also hold a position at the higher levels of the Ministry of Communications, possibly controlling the affairs of the Civil Air Bureau. He was born in 1904 in Hunan Province. After attending primary school he worked as an apprentice in a pen shop. He was one of the early members of the CCP. He joined Communist guerrillas in local rebellions in 1927 and engaged in political work with troops under P'eng Te-huai. Aggressiveness in work won P'eng's favor and brought quick promotions. Chung became deputy political commissar of the 2d Division, 3d Army Corps in 1930, and was in the Long March (1934-35). During his escape to Kueichou Province in 1937 he received a serious wound which resulted in the loss of his left leg. Reportedly he remained there to study military science, returning to Manchuria with the Soviet Army in late 1945. Since World War II Chung has alternated between military commands and high civil aviation positions. In 1947 he was Commandant of the Northeast Military and Political University at Chia-mu-ssu; in 1950, Chief Instructor of the Kuang-chou Air Force School and reported head of the South China Supply Depot. Also in 1950, Chung was named board chairman of the Chinese People's Aviation Corporation, later renamed the Civil Aviation Bureau. He was mentioned as Chief of Aviation Supply at Kuangchou in June 1951. For several months in 1951-52 he was an army corps commander in Korea. In 1953 he was shifted to the command of the South Central Air Force District Supply Depot. In 1955 he became Commander, North China Air Force District. Around 1956 Chung was appointed Deputy Commander, CCAF. Chung is 5'7" tall, weighs about 140 pounds, and is described as haughty but courageous in battle. He is rather easily irritated but is conservative in his actions. In December 1964 he was elected a delegate of the CCAF to the 3d National People's Congress.

WANG Hui-ch'iu (3769/6540/3808), Lieutenant General, Deputy Political Commissar and Director, Political Department, CCAF—Wang has long and extensive experience in military political work. However in 1965, when Political Commissar Wu Fa-hsien was elevated to Commander, CCAF upon the death of the long time Commander, Liu Ya-lo, Wang was passed over and one of the newer deputy political commissars, Yu Li-chin (0150/4539/6853) was promoted to Political Commissar, CCAF. Wang was born in 1910 and has risen through the ranks. His first known prominent position was as a deputy political commissar of an army group in 1949. He became Deputy Political Commissar, Kueichou Military District in 1950. In 1954 he was appointed Political Comissar of the same district. Late in 1954 Wang was promoted to Director, Political Department, CCAF. In September 1955 he was promoted to the rank of lieutenant general and received the Order of Liberation, First Class. In 1959 he received the additional post of Deputy Political Commissar, CCAF.

TS'AO Li-Huai (2580/6849/2037), Lieutenant General, Deputy Commander, CCAF—Born 1906 in Hunan Province, Ts'ao graduated from Whampoa Military Academy and received further training at the Resistance University in Yenan. He began his career as a guerrilla fighter, participating in peasant uprisings in Hunan Province in the early days of the Communist movement. Rising through the ranks from Squad Leader, he was serving as a regimental commander, 12th Army, by 1930. In 1932 he was Commander, 36th Division, 12th Army; and in 1935 he was Chief of Staff, 4th Regional Army. During World War II he conducted guerrilla operations in Shantung Province. From 1945 to 1950 he was successively Commander, Kirin-Heilungkiang Military District; Commander, 3d Independent Division; Commander, North Kirin Military District; Commander 10th Column, 12th Column; and Commander, Hunan Military District. In 1953 he became Commander, Southeast Air Command, CCAF, and in 1954 he was promoted to Deputy Commander, CCAF. In December 1964, Ts'ao was elected a CCAF delegate to the 3d National People's Congress. Ts'ao is 5'2" tall and weighs about 135 pounds. He likes to smoke and drink and is uninhibited in his actions. He has a slight hunchback. Ts'ao is a strict disciplinarian and an excellent commander. Ts'ao's unit, the 47th Army, was reputedly one of the best in the Korean War. Ts'ao has been married three times, the third wife being the 24-year-old daughter of a defected former Nationalist Chinese naval officer.

LIU Chen (0491/7201), Colonel General, Deputy Commandant, CCAF Academy and alternate member of the Chinese Communist Party Central Committee (CCP-CC)—Liu had been the Deputy Commander, CCAF from 1959 to mid-1965. He was the only Colonel General in the CCAF except for the Commander, Liu Ya-lou (0491/0068/2869), who died in August 1965. Instead of being appointed Commander, CCAF upon the death of Liu Ya-lou, Liu Chen was put into a semi-retired status with the honorary post of Deputy Commandant, CCAF Academy. This probably was done because of Liu's advanced age rather than being any sort of political purge. Liu was born in 1896 in Hupeh Province. He is a veteran CCP member and participated in the Long March. In 1945 he was commanding a regiment in the 8th Route Army. After the victory over Japan, he rose rapidly in rank and became the Commander, 2d Column, Northeast United Democratic Army, later redesignated the 39th Army of the 4th Field Army. By 1951 he was the Commander, Northeastern (Manchurian) Air Force and probably the de facto commander of the air arm of the Chinese Communist People's Volunteer Army in Korea. In 1956 he was elected an alternate member of the CCP-CC and was promoted to Colonel General in 1957. In 1959 he was identified as a Deputy Commander, CCAF.

LIU Shan-pen (0491/0810/2069), Senior Colonel last positive rank identification; unconfirmed reports that he was promoted to Major General—Liu is a member of the National Defense Council, a post of high prestige but little power. Liu's current importance in the CCAF has been greatly overestimated. He is often referred to as Chief of Staff of the Air Force, but his present position is Deputy Director, Training Department, CCAF. Liu is also on the standing committee of the National Youth Congress. Liu was born about 1915 in Nan P'o-ch'uang, An-ch'iu hsien, Shantung Province. He attended a middle

DECLASSIFIED
Authority NND 45 333
By JW NARA Date 9/2/10

school affiliated with the then National Peking Normal University, then became a cadet at the Chien-ch'iao Flight Training School (Nationalist) in Hang-chou, 1935, graduating in the bombardment section of the 8th class. He served as a bomber-pilot lieutenant with the 6th Group, and later the 8th Group. He had war service against the Japanese at K'un-ming, Ch'eng-tu, and Lan-chou. In 1943 the Nationalist Government sent him to Douglas, Arizona, for advanced flight training, then to Albuquerque, New Mexico, for basic training in M-24 aircraft. Returning to China in 1945, he became a captain in the 35th Squadron, 8th Group. In June 1946, Liu defected to the Communists, flying a B-24 from Ch'eng-tu to Yen-an. Reportedly, he received additional training in the U.S.S.R., then trained Chinese Communist pilots for about 2 years. In 1949 Liu was an air force representative at the People's Consultative Conference in Peking and also a member of the Conference's First National Committee from 1949 to 1954. Also in 1949, Liu was appointed Chief of Staff of the new CCAF and Commander of the 10th Air Force Division; concurrently he became the Commandant, Air Force Training School. In 1950 Liu went to Hong Kong under an assumed name, took delivery of some aircraft, bought spare parts, and may have engaged in other clandestine work. In 1952, Liu was promoted to the rank of Colonel, CCAF. He lost his position as chief of staff and has since that date been primarily involved with air force training. From late 1952 until 1956 he also was engaged in air defense work in northeast China. In 1954 Liu was appointed to the National Defense Council, a post he still holds. In the same year, Liu was elected a CCAF delegate to the First National People's Congress. He was re-elected to the 2d and 3d sessions in 1959 and 1964, respectively. In 1955, Liu was promoted to the rank of Senior Colonel, and in 1956 assumed his present post as Deputy Director, CCAF Training Department. Liu's power and influence have been decreasing. At the inception of the CCAF in 1949, Liu was one of the very few well trained men available, but after his expertise was less critical he was replaced in important power positions by better trusted men, although he is still an important "showpiece." Liu lives with his wife, Shu-huang; a son, Li-wen; a daughter, Lan-p'ing; and a younger daughter in Peking. He is a good speaker and an excellent pilot.

b. List of personalities

YU Li-chin (0151/4539/6853) ..... Lieutenant General	Political Commissar
HSU Shen-chi (1776/3234/0679) ..... Lieutenant General	Deputy Commander
SHAO Chien-po* (6730/0049/3134) ...	*Do.*
KU Te-sheng (6253/1795/3932) ..... Major General	Deputy Political Commissar
P'EI Chih-king (5952/1807/5087) .... Major General	*Do.*
CH'ENG T'an* (4453/0982)	*Do.*
WANG Pi* (3769/1732)	*Do.*
CH'I Chia-yu* (phonetic)	Chief of Staff
CHANG Ting-fa (1728/1650/4099) ... Major General	Deputy Chief of Staff
HO T'ing-yi (0149/1694/0001) ..... Major General	*Do.*
HO Lu-ting* (6320/4845/3060)	Deputy Director, Political Department
LIN Chieh-piao (2651/2234/1753) .... Major General	*Do.*
WANG Ch'ing-min* (3769/7234/2404) .	Director Rear Services Department
YAO K'o-yu (1202/0344/0147) ..... Major General	Director Training Department
WU Fu-shan (0702/1381/0810) ..... Lieutenant General	Commander, South China Air Defense District
LIU Chin-p'ing (0491/6390/1627) .... Major General	Political Commissar, South China Air Defense District
FU Ch'uan-tso (0265/1413/0159) ..... Major General	Commander, Southwest China Air Defense District
LIU Chin-kan* (phonetic)	Commander, Northwest China Air Defense District
KUAN Sheng-chih (7070/4141/1807) .. Major General	Political Commissar, Northwest China Air Defense District
TS'ENG Kuo-hua (2582/0948/5478) .. Lieutenant General	Commander, Northeast China Air Defense District
CHANG Chao-yuan* (phonetic)	Commander, East China Air Defense District
CHU Hui-chao (2612/6540/2507) .... Lieutenant General	Commander, North China Air Defense District
MAO Ling-fen* (phonetic)	Commander, Central or South China Air Defense District
CHOU Shun-ch'eng* (0719/7311/2490) .	Deputy Commander, Air Defense Command
LUNG Tao-ch'uan (7893/6673/2938) .. Major General	Director, Political Department
LI Hua-min (2621/0553/3046) ..... Major General	Commander, Canton Military Region
FANG Sheng-p'u (2455/0585/2538) ... Major General	Commander, Foo Chow Military Region
WANG Tso-yao (3769/0144/1031) .... Major General	Commander, Nanking Military Region

* Former rank unknown.

G. Training

1. General

In 1945 limited training for the Chinese Communist Air Force began at bases in Manchuria under Russian and Japanese instructors. In addition, many aircrew and technical personnel were sent to the U.S.S.R. for training. In 1950 the Chinese Communist training establishment underwent significant expansion and the pattern of training became more clearly defined. Since 1950, there has been continued expansion; aircraft types have been standardized; and the training program and schools have been reorganized to a standard pattern. Due to the current Sino-Soviet ideological rift, Soviet support has practically ceased, and the Chinese Communists are now considered to be fully responsible for all phases of their training program.

The CCAF school system prepares pilots, crewmen, and aviation technicians for assignment to operational units. Pilot training, which includes considerable time in preflight studies, requires approximately 2 years. In the past, technical air training emphasized a fast turnout of technicians and mechanics, with training limited to that for a specific job. Engineer training in aeronautical and associated fields has been limited. However, there is some evidence that more extensive training is now provided in the technical fields, or is available outside the CCAF system proper.

A total of 20 major CCAF and 2 CCNAF schools have been identified (Figure 15). Other schools or training

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

FIGURE 15. MAJOR CHINESE COMMUNIST AIR SCHOOLS

TITLE	HEADQUARTERS	AIRFIELDS USED	TYPE TRAINING
CCAF:			
1st Air School	Ha-erh-pin	Ha-erh-pin complex	Bomber crew (piston engine).
2d Air School	Ch'eng-ch'un	Ch'eng-ch'un West	Bomber crew.
3d Air School	Chin-chou	Chin-hsien West, Fu-sin	Jet fighter pilot.
4th Air School	T'ai-yuan	Shih-men, Yuan-shih, Kao-cheng, T'ai-yuan South, Kao-i.	*Do.*
5th Air School	Chi-nan	Chi-nan, Chou-t'sun, Hsu-ch'ang, Wu-wei.	*Do.*
6th Air School	Cho-hsien	Ch'ing-yuan, Ting-hsing	*Do.*
7th Air School	Mu-tan-Chiang	Hai-lang, Ya-men-tun, Wen-ch'un Northwest.	Ground attack.
8th Air School	Shen-yang	*na*	Technical.
9th Air School	Ch'ang-ch'un	Kung-chu-ling (possible)	*Do.*
10th Air School	T'ai-yuan	T'ai-yuan New, Ka-erh-mu	*Do.*
11th Air School	Ts'ang-hsien	Ts'ang-hsien	Jet fighter pilot.
12th Air School	Lin-fen	Lin-fen, T'ai-yuan South	Technical.
13th Air School	Ch'eng-tu	Ch'engtu complex	Ordnance.
14th Air School	*do*	Ch'eng-tu complex, Hsin-ching	Transport pilot.
15th Air School	Northwest China	*na*	*na*
16th Air School	Hsi-an	Hsien-yang, Hu-hsien	Bomber crew.
17th Air School	Chi-lin	Ku-tien-tzu	*na*
18th Air School	T'ai-yuan (unconfirmed)	T'ai-yuan complex	*na*
19th Air School	Peking	*na*	*na*
20th Air School	Nan-ching	*na*	Administrative.
CCNAF:			
1st Air School	Chin-hsi	Chin-hsi, Hsing-cheng, Lin-yu South.	Pilot training.
2d Air School	Tsingtao	Tsing-tao	Probably technical.

centers have also been reported; they are not all under the CCAF or CCNAF, but they do provide training in aircraft maintenance and repair and in technical fields. In all, there are about 40 aviation schools utilizing about 60 airfields for training.

2. Preparatory

Communist China follows the Soviet pattern of training youths from an early age, in accordance with Party objectives. This is done in part through two youth groups—The Young Pioneers, for the age group of 9 to 15, and the Democratic Youth League, for the age group of 15 to 25. As a part of their activities, these organizations encourage youthful interest in aviation. Paramilitary activities sponsored by these groups include flying of model planes, glider training and contests, parachuting, discussions and informal courses in aeronautics and mechanics, and lectures on air "heroes."

The only known formal preparatory training for aviation is a course of instruction for pilots (probably gliders only), given in senior middle school (comparable to a U.S. high school), and vocational training in the various civilian technical schools and universities for ground specialists.

3. Preoperational flying

a. PILOTS — Each of the identified CCAF flying schools has facilities for complete training from preflight through advanced flying. At least three schools conduct light bomber training; several train fighter pilots, including attack fighters; and one apparently trains transport pilots and crews. One school trained North Korean Air Force personnel until at least 1959. Several schools are directed toward specialist courses (technical, ordnance, administration, etc.). The type of training offered by four schools is unknown. The pilot training schools generally accommodate 300 to 400 students at a given time, although those that include other activities are considerably larger.

The schools are organized into regiments, each flight regiment having three battalions. Upon completion of preflight training, cadets are placed in flight regiments where they graduate from primary to secondary and then to advanced courses. By Western standards, actual flying training is limited; however, ground studies appear to be thorough. Although completion of flight school courses does not produce combat-ready pilots, the graduates are qualified for assignment to operational units. Training methods and devices employed appear to be conventional. Flying cadets are usually dropped from training for physical disability or for political unreliability. If a cadet fails to pass a course, he repeats it until he passes; apparently there is no set period within which an individual must complete his training. The normal course in the flying schools takes about 2 years. The amount of flying time appears to have been increasing and may sometimes be as much as double the 100 to 150 hours provided several years ago. Bomber pilots apparently have a somewhat longer course and receive more flying time than fighter pilots.

Cadet candidates are generally required to have at least a senior middle school (U.S. high school) education or must be able to pass an equivalent examination. Applicants are accepted from all levels of society, but

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

they must be Communist Party or Youth League members, or be vouched for by a Party or a Communist provincial committee. Age limits are from 17 to 27. The preferred age is 18 to 20, and candidates approaching the maximum limit apparently must have previous military service, which is not required for the others.

Mental examinations for candidates probably include a written intelligence test, aptitude tests and, for candidates who are not senior middle school graduates, a comprehensive written examination. Physical requirements probably are high, but not as exacting as those for USAF pilot cadets.

Preflight training, which may last about 9 months, includes courses in political indoctrination, flight theory, aircraft and aircraft engines, navigation, meteorology, theory of gunnery, tactics, chemical warfare, camouflage, parachutes, hygiene, physical training, and military drill.

Primary flying training may take 4 months on the average. Cadets undergo dual and solo practice takeoffs, landings, and basic aerial maneuvers. The Soviet MAX single-engine primary trainer is widely used.

Secondary basic training may also take about 4 months. It includes takeoffs and landings, aerial maneuvers, formation flying, and interception exercises. The MOOSE single-engine basic trainer appears to be used by most of the schools.

Advanced training averages about 7 months, but may last as long as a year. Flying time appears to vary from about 90 to 150 hours or more. Ground attack trainees use training and operational versions of the BEAST and practice formation flying, low-level bombing, strafing, air-to-air and air-to-ground gunnery, and defensive tactics. The training for fighter pilots is similar with emphasis on acrobatics and air-to-air gunnery. Aircraft used include the piston-engine FRITZ and MIDGET, FAGOT, FRESCO, and training versions of FARMER jet fighters. For bomber pilots, whose earlier training emphasizes accurate flying of headings, altitudes, and airspeeds, the advanced training stresses bombing run techniques and evasive tactics. Aircraft used include the piston-engine BAT and the BEAGLE jet light bomber.

b. OTHER AIRCREW — Prerequisites for navigator trainees probably are similar to those for pilots. The Communist practice of combining navigator and bombardier duties suggests that the CCAF has a consolidated program to turn out dual-rated navigator-bombardiers. This program apparently is accomplished at the CCAF bomber pilot and aircrew schools. Under Soviet practice, which probably has been adapted to CCAF needs, training in this combined rating generally extends over a period of about 2 years. The curriculum includes courses in political indoctrination, navigation, bombardment, aerial gunnery, communications, aerial photography, theory of flight, meterology, air-ground tactics, and physical training. The first five subjects receive the greatest emphasis during the course.

The navigation syllabus covers a fairly detailed study of the following subjects: maps, plotting instruments, headings, compasses, compass deviation and correction, altitude measurement and errors, airspeed measurement and errors, gyroscopic properties and applications, wind drift, flight planning, fuel consumption, standard operating procedure prior to flight, map reading, radio navigation, theory, equipment, and operation. This training requires approximately 100 hours of flying time. Theory and practice in dead reckoning and radio navigation are stressed. However, apparently little emphasis is placed on celestial navigation in the training program.

Training of flight engineers in the CCAF has not been confirmed, although there is an obvious requirement for such personnel for the crews of BULL and certain transport aircraft. Soviet flight engineers probably have assisted the Chinese in this capacity.

Training of aerial gunners and radio operators probably follows the Soviet practice in which such training requires from 1½ to 2 years. A total of 6 months of this schooling is devoted to general military subjects, such as chemical warfare, topography, tactics, marksmanship, drill, physical training, and political indoctrination. The remainder of the course is spent in learning to use and maintain equipment. During this latter phase, the trainees receive instruction in basic fundamentals of radio technology, theory of aerial gunnery, aerial armament, radio equipment, Morse code, and minor maintenance of armament and radio equipment.

4. Ground personnel

There are some Chinese Communist aeronautical engineers, although they are comparatively few in number. Air force technical personnel are predominantly nonengineer technicians and mechanics. The technical training program, which in the past was geared to turn out technicians and mechanics with knowledge limited to the type of work they are expected to perform, appears to have been broadened somewhat. The majority of trainees entering the air force and naval arm have little technical background, and must be taught the elementary principles and theories of their specialties. Technical training generally is similar to that in other Soviet-influenced air forces.

Technical and mechanical training apparently is given in a few schools specializing in such training, as well as in separate courses for mechanics maintained at the various pilot training schools of the CCAF. Specialized schools graduate air force technical and engineering officers, as well as enlisted maintenance and technical specialists; only enlisted personnel are trained in the pilot training schools.

Candidates for technical officer training probably are selected from technical schools and universities on the basis of their school standing, political reliability, and appropriate aptitude tests. Details of the training offered are not available; in general, it includes military subjects, drill, and physical education, in addition to technical subjects. Since these officer candidates already

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

have some technical background, complete technical courses probably are short and highly specialized.

Facilities for advanced technical training are believed to be limited, but there are indications of schools or institutes in Nan Ching, Peking, and Mukden that may provide such aeronautical training, including assembly, design, and construction, in courses running up to 5 years. On-the-job training is carried out in operational units.

The mechanics' schools attached to the CCAF pilot schools conduct courses lasting approximately 1½ years. Successful completion of the prescribed training qualifies noncommissioned officers as aircraft engine, airframe, radio, and armament mechanics.

The syllabus probably includes courses in aircraft materials, mechanical drafting, machine tools, control cables, carpentry, metal forging, paints and lacquers, copper and tin working, theory and maintenance of aircraft engines, basic aerodynamics, aircraft assembly and overhaul, electrical equipment, accessories, and armament. Trainees also receive political indoctrination, and instruction in military drill, marksmanship, chemical warfare, and camouflage. On-the-job training in operational units is used to broaden the formal training and to achieve the desired level of proficiency.

Specific programs are not apparent for the training of staff and supporting services personnel in the CCAF. Thus, intelligence personnel for the CCAF apparently receive no specialized CCAF training. They may be schooled in the ground forces training system and then return to the air force for on-the-job training. The training of CCAF supply and finance personnel may be accomplished in a similar manner. Schools operated by the rear services departments of the military areas provide training in the use of the abacus, maintenance of records, use of requisitions and receipts, and familiarization with supply procedures. Motor transport training schools, also subordinate to the rear services departments, provide instruction in long-distance driving in truck convoy, motor and body maintenance, and routine repair.

Basic medical training for air personnel probably is obtained at military medical colleges located in the greater administrative areas. The schools offer a regular course lasting 5 years and an abbreviated course of approximately 2 years. There are indications of a formal medical training program within the air force, but it appears to be limited to training of nurses and medical corpsmen. Since the CCAF is known to have its own hospitals, certain air force physicians and medical technicians probably are given training in aviation medicine through short training periods and on-the-job training, as in the case of the U.S.S.R.

5. Advanced military

Although not yet confirmed, an Air War College has been reported to be located in Peking. Since 1950, emphasis has been placed on schools capable of developing operational personnel. Most major staff positions initially were filled by Soviet air officers; however, because of ideological differences, the Soviet influence has diminished and these positions are now manned by Chinese. It is reasonable to assume that the majority of the senior Chinese Communist staff officers and commanders have probably received some training in Soviet schools. CCAF officers probably also attend the Revolutionary Military Institute, a national war college subordinate to the Ministry of National Defense.

6. Operational training system

The CCAF operational training system is designed to provide air units with the capability of successfully performing their assigned missions during combat. After having completed ground, basic, and advanced training, pilots are assigned to operational regiments for integration into first-line units of the air force.

The fighter pilots operational training system includes a short transition syllabus in two-place U-MiG-15 MIDGETS in regiments to which they are assigned. Formation flying, GCI training, air-to-air gunnery, navigation, night flying, visual reconnaissance, and possibly some air-to-ground gunnery and bomber escort are then performed in the type of aircraft assigned to their regiment. For more realistic training, some units are temporarily deployed to coastal airfields opposite Taiwan for combat air patrol and possible interception missions against the Nationalist China Air Force.

Light bomber units stress navigation flights, day and night training, and visual and radar bombing techniques. Overwater flights are occasionally conducted but for the most part, the longer range sorties are over land. Recently, there has been evidence of participation in a joint escort effort.

Ground support, or attack, training is confined to air-to-ground strafing and dive bombing. This phase of training appears to be relegated to a lower priority than in previous years during the formative stages of the air force.

The few BULL propeller medium bombers in the CCAF are used for navigational training and day medium level bombing, which is practically all accomplished during visual flight conditions. It is not known whether these aircraft are equipped for radar bombing. The relatively small amount of flying done by the independent regiment equipped with BULL aircraft indicates that their pilot proficiency is probably low.

7. Reserve

Prior to February 1955, the CCAF made little provision for a reserve training system. The conscription and service regulations announced in February 1955 initiated a reserve system. It provided for creation of a reserve of over-age officers and civilian students who have had military courses. This group was to undergo a training period of several weeks each year. The effect of this system on the CCAF remains to be determined. Because of the continuing shortage of trained aviation manpower in Communist China, the CCAF probably will continue its present policy of enlisting or commission-

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

ing as many trained personnel as can be located, and of releasing as few as possible regardless of age, making the margin of air force reserves exceedingly small for some time to come.

8. Foreign air programs

Immediately following signing of the Sino-Soviet Treaty of Friendship, Alliance, and Mutual Assistance in 1950, the U.S.S.R. provided the CCAF with the Soviet officers and technicians for command and tutelage of the indigenous force. The actual agreement on the extent of Soviet support has never been confirmed. However, the CCAF relied almost entirely upon Soviet equipment and techniques in implementing its training program. Notwithstanding the departure of Soviet instructors with the advisers in 1961, Soviet techniques and concepts probably remain in use. There has been no indication that air training facilities in the U.S.S.R. have been available to the CCAF since the rift.

The 10th CCAF School then located at Yen-chi, Manchuria, with mostly CCAF instructors, was used for North Korean Air Force training up to mid-1959. This school was reportedly moved to the Ch'ongjin-Susong area of North Korea about July 1959. Details concerning the present operation of the school are not known.

North Vietnamese and Pathet Lao military personnel are being trained in Communist China as pilots, mechanics, and probably as paratroopers. In early 1961 it was reported that about 230 North Vietnamese and Pathet Lao pilots were receiving training at Nan-ning Airfield, using MiG-15 trainers, and that another 90 Pathet Lao pilots were being trained at K'un-ming Airfield, using MOOSE (Yak-11) type aircraft. At the same time, reportedly about 60 North Vietnamese and Pathet Lao air crews were receiving flight training at K'unming, in MiG-15 and MiG-17 type aircraft, and another group of about 25 Pathet Lao aircrew personnel were receiving flight training at Meng-tzu Airfield in Yak-17 type aircraft. Numbers of personnel and types of aircraft mentioned are not entirely confirmed.

H. Logistics

1. Supply

a. CONTROL AND PLANNING — Logistic control and planning procedures for both the CCAF and the CCNAF continue to reflect the influence, guidance, and support supplied by the Soviet Union during the period of close collaboration.

In the Chinese Communist armed forces structure, the rear services department of the Ministry of Defense has primary control and policy responsibility for logistic matters common to all of the armed forces. Allocation and transportation to subordinate military areas of common-use supplies are effected by this department. These supplies are usually forwarded directly from ports of entry or from local sources to supply depots within jurisdiction of the military area commands.

The rear services departments of these military area commands perform logistical and administrative functions within their particular areas. The CCAF area commander, assigned to the headquarters of each area command, represents the CCAF in area logistical matters and also is responsible for insuring logistical support of CCAF installations. The military area rear services departments probably have the following specific responsibilities for air force logistics: control and administration of the area military supply depots that furnish common-use items to the air force, control of military transportation facilities other than those assigned to air units, construction of base facilities, and coordination of logistic operations involving the air force and other military uses. The next lower echelons in the territorial organization, such as military district commands, probably also perform logistical support functions.

Within the CCAF, the rear services organization insures that air logistic needs are met. In performing this function the deputy commander or rear services has direct liaison with his counterparts both at the Ministry of Defense and at the territorial and unit command levels.

b. SYSTEM IN OPERATION — The deputy commander for rear services at CCAF headquarters consolidates supply requirements into an overall air force program. The rear services department of the Ministry of Defense consolidates requirements of the armed forces. After approval of the CCAF program, the rear services section of the air force procures technical supplies and materials, except complete aircraft, and distributes and stores these items. This section is also responsible for storage of common-use items after they enter air force channels. However, in accord with the Soviet practice, the aviation engineering services section probably is responsible for procurement of complete aircraft. In addition to common-use and miscellaneous types of depots maintained by the military areas' rear service departments, the CCAF maintains aviation depots in each military area. These depots stock items peculiar to air force needs.

The Chinese air supply classification system follows Soviet practice for dividing supplies into two general classes—technical supplies and common-use items. Technical supplies are those peculiar to military aviation and common-use items are general-issue items used by all military units.

Common-use supplies are divided into classes, as follows:

Class I—Common-use supplies, such as rations and PX items, which are normally consumed at uniform daily rates.
Class II—Common-use items, such as clothing, organizational equipment, vehicles, and spare parts, which are initially issued in accordance with fixed Tables of Allowance.
Class III—Common-use fuels and lubricants, such as vehicle fuels.
Class IV—Common-use items and materials not issued against initial Tables of Allowance, such as construction materials and special machinery. Re-issue of Class II items to replenish depleted stock is also considered Class IV.
Class V—Common-use ammunition, including small arms ammunition, construction explosives, common-use fuzes, pyrotechnics, etc.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

Technical supplies are divided into classes, as follows:

Class II(A)—Aviation supplies and equipment initially issued in accordance with fixed Tables of Allowance.
Class III(A)—Aviation fuels and lubricants.
Class IV(A)—Aviation supplies not issued against initial Tables of Allowance and items requiring special controls.
Class V(A)—Aviation ammunition and expendable ammunition accessories.

Six technical divisions, subordinate to the deputy commander for rear services, administer the supply system and provide all supply support for the operational units through subordinate air technical battalions.

The air technical battalion (ATB) is administratively under the air technical division and operationally subordinate to the air regiment commander to which it is attached. The ATB provides rations, equipment, and technical supplies; minor airfield maintenance;* security of airfields and installations; transportation of supplies and unit movements; communications facilities; financial administration; medical facilities; fire protection; and other logistic support. It also maintains a supply warehouse where the regiment, battalions, and companies draw technical and common-use supplies. A 30-day supply level probably is maintained. In addition, the ATB probably is responsible for the storage of all POL products for the regiment.

Based upon Soviet tables, the estimated equipment of the Chinese air technical battalion includes 1,650-gallon fuel trucks (2-8); 1,050-gallon fuel trucks (4); 1,500-gallon fuel trailers (4-6); 1,050-gallon oil trucks (1-4); personnel buses (1-3); command cars, sedans, jeeps (3-5); general-purpose trucks (15-30); fire trucks (1-2); ambulances (1-2); runway sweepers (1); snowplows or attachments (1-2); mobile cranes (2); mobile floodlights (2); PARM trucks (3-4); tractors (2-5); gun-trap/bomb trailers (25-30); starter carts (12-20); and communications trucks/trailers and power units (3). The items of equipment listed are average. Wide variations have been noted; types of equipment are dependent upon the types of air regiments supported. However, the quantities are those necessary to provide for basic requirements under sustained combat conditions in support of 30 to 40 aircraft at one airfield. If two or more airfields are used by the same number of aircraft, augmentation will be necessary in order to furnish proper support.

Until recently it was believed that authorized aircraft strengths of CCAF and CCNAF air regiments were practically the same as similar Soviet units. Considerable evidence, however, confirms that Chinese Communist regimental aircraft strengths differ and are as follows:

	Soviet	CCAF	CCNAF
Fighter			
Jet	37	25	30
Attack			
Jet (fighter)	42	*	*
Prop	42	*n a*	*n a*
Light bomber			
Jet	32	18	18
Prop	42	*n a*	*n a*
Reconnaissance			
Jet (fighter)	32	*	*
Jet (light bomber)	21	*	(Prob.) 10
Jet (medium bomber)	32	*n a*	*n a*
Prop	32	*n a*	*n a*

* Aircraft are available for this purpose but no units are assigned this specific function.

Authorized personnel strength of the Chinese air technical battalion also varies and is likewise dependent upon the types of air regiments supported. Even though confirming evidence is unavailable, it is likely that authorized personnel strengths of the air technical battalions have been revised as a result of the post-1962 revision of the estimated CCAF regimental aircraft composition. The estimated personnel strength of the Soviet air technical battalion (ATB) is 250-275 for those supporting jet fighter units; 290-310 for ATBs supporting jet light bomber units; 400-425 for ATBs supporting piston medium bomber units; and 270-290 for ATBs supporting piston transport units. These personnel figures cover Soviet average ranges for ATBs reported on and estimated during the past several years. (The smaller figures in each case represent the number of persons required for normal maximum peacetime operations. The larger figures are for support of augmented regiments or for sustained combat operations.) The basic functions of Soviet ATBs (supply, housekeeping, administrative, base repair) have remained relatively constant for several years. However, their personnel strength is roughly indicative of the minimum skilled and semiskilled manpower needed by the Chinese for support of their air regiments.

c. Supply requirements — The estimated daily logistical requirements (fuel, ammunition, technical supplies, and common-use supplies) required for Chinese fighter, bomber, and cargo aircraft are shown in Figure 16. Supply requirements for various Chinese air headquarters and other establishments in peacetime have not been established.

2. Maintenance

a. Control and planning — The aircraft maintenance system of the CCAF and CCNAF is basically in the pattern introduced by the Soviets and supervised by their technical advisers until mid-1961. Soviet maintenance equipment and techniques predominate. Technical publications, maintenance manuals and records, planning procedures, and maintenance methods follow closely those of the Soviet Air Forces.

* Engineering battalions, the major construction units, are assigned to the air force from the Ministry of Defense on the basis of need and availability. Increased efficiency of these battalions is evidenced by modern, more sophisticated equipment photographed in airfield construction, i.e. at Ning-ming Airfield in early 1965. These battalions are under control of the air force only when detailed to air force construction work. Minor projects involving routine upkeep of the airfield and base facilities are accomplished by the air technical battalion.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

FIGURE 16. CHINESE COMMUNIST DAILY LOGISTICAL REQUIREMENTS PER TEN AIRCRAFT* (PEACETIME/SUSTAINED)

AIRCRAFT	AVIATION FUEL AND LUBRICANTS (Cl III(A))	AVIATION AMMUNITION (Cl V(A))	AVIATION TECHNICAL SUPPLIES (Cl II(A) AND IV(A))	COMMON-USE ITEMS (Cl I, II, III, IV, V)	TOTAL ALL CONSUMABLE SUPPLIES
	tons/tons	*tons/tons*	*tons/tons*	*tons/tons*	*tons/tons*
FAGOT (ftr and recon)	3.0/10.0	0.1/1.0	0.1/0.2	1.1/1.3	4.3/12.5
FAGOT (grd attack)	4.0/14.0	0.3/5.0	0.2/0.3	1.2/1.4	5.7/20.7
FARMER (ftr)	5.0/15.0	0.1/1.0	0.1/0.2	1.2/1.4	6.4/17.6
FARMER (grd attack)	6.0/20.0	*na*/0.2	0.2/0.3	1.3/1.5	7.5/26.8
FLASHLIGHT (ftr)	**7.0/19.0	**0.1/1.0	**0.1/0.3	**1.3/1.5	**8.5/21.8
FRESCO (ftr)	4.0/11.0	0.1/1.0	0.1/0.2	1.1/1.3	5.3/13.5
FRESCO (grd attack)	4.0/15.0	0.2/5.0	0.2/0.3	1.2/1.4	5.6/21.7
FISHBED (ftr)	4.5/13.4	0.085/.05	0.1/0.2	1.2/1.4	5.9/15.9
FISHBED (grd attack)	9.5/29.5	0.440/4.40	0.2/0.3	1.3/1.5	11.44/35.7
BEAGLE (lt bomber and recon)	9.0/42.0	1.0/13.0	0.4/1.0	1.8/2.0	12.2/58.0
BEAGLE (grd attack)	12.0/55.0	2.0/15.0	0.5/1.0	1.9/2.1	16.4/73.1
BEAST (grd attack)	2.0/4.0	1.0/4.0	0.3/0.4	0.9/1.0	4.2/9.4
BULL (med bomber)	15.0/33.0	*na*/19.0	0.8/1.0	3.8/4.0	21.6/57.0
CAB (lt transport)	3.0/7.0	...	0.8/1.0	1.4/1.6	5.2/9.6
COACH (lt transport)	5.0/10.0	...	1.0/1.0	1.4/1.6	7.4/12.6
COOT (med turbo transport)	**35.0/50.0	...	**1.0/1.2	**3.9/4.0	**39.9/55.2
Viscount (med turbo transport)	12.5/17.8	...	1.0/1.2	3.9/4.0	17.4/23.0
CRATE (lt transport)	6.0/12.0	...	1.0/1.0	1.4/1.6	8.4/14.6
Other (utility, helicopter, small transport)	1.0/2.0	...	0.1/0.2	0.8/2.0	1.9/4.2

* Figures used in this table should be used for comparative requirements of different types of aircraft under variable employment. For more precise logistical requirements, see *Soviet Bloc Aircraft Planning Factors* (SECRET), published by the Defense Intelligence Agency.

** Estimate is for U.S.S.R. usage; CCAF figure is not established.

The deputy commander for aviation engineering services is responsible for maintenance control and planning. He is responsible, through supervision of his counterparts in operational units, for adherence to established maintenance policies and concepts. Until at least 1960, he had Soviet advisers who furnished technical guidance and participated in implementation of the maintenance system. Soviet aviation engineering specialists also furnished technical guidance to the Chinese engineering personnel in operational units. These Soviet specialists appear to have had considerable influence in maintenance control and planning.

The rigid Soviet system of maintenance control through the use of logbooks and maintenance records is used. Separate aircraft, engine, and accessory logbooks contain complete information for the aircraft and its equipment. These logbooks are used to determine maintenance schedules, the type of repairs and time required, service life, and daily status of the aircraft. In addition, the ground crew is required to keep a detailed life history of the aircraft, engine, and all equipment. The maintenance system is monitored through regular inspections by division and regimental commanders, and by division, regimental, and battalion technical officers.

b. SYSTEM IN OPERATION

(1) *Maintenance structure* — The aircraft maintenance system is administered by the deputy commander for aviation engineering services through his counterparts in the operational units. At air division, regiment, and battalion levels the deputy commanders for technical matters supervise training and performance of technical officers and all maintenance personnel and insure accomplishment of aircraft maintenance. Each deputy has responsibility for maintenance and readiness of aircraft and associated equipment assigned to subordinate units.

There are additional technical officers at division, regiment, and battalion level who are responsible to the deputy commander for technical matters for accomplishment of ordnance, radio, and electrical maintenance.

The aircraft ground maintenance crew is the basic maintenance unit. The jet fighter ground crew probably consists of a crew chief (or flight technician), usually an officer; mechanic; electrician or electronics mechanic; and an ordnance mechanic. Ground crews for other aircraft types are similar in composition, although probably fewer in number for piston aircraft. During combat, the pilot must inspect the aircraft each morning for overall combat readiness. The crew chief is responsible for the repair and readiness of the aircraft, performance and training of the crew, provision of expendable supplies including POL, and for provision of specialized assistance required by the crew. The ground crew performs the daily and periodic inspections and repairs on the aircraft with the assistance of the mobile repair shop. It depends upon outside help for any work beyond its capability. The ground crew replenishes POL and ordnance and is responsible for the cleaning, handling, and storage of assigned aircraft.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

(2) *Categories of maintenance* — The repair of airframes, engines, ordnance equipment, and accessories apparently is classified as follows:

Overhaul—Includes rebuilding of airframes, engines, accessories and equipment that involves complete disassembly of the aircraft.

Repair of damage—Repair executed when damage does not require overhaul of the aircraft.

Ordinary repair—Consists of daily repair, which does not require complete disassembly of equipment. Usually, it is done by the ground crew, and is confined to the replacement of unsatisfactory parts or units, including replacement of aircraft engines.

Minor repair—Daily or preventive type maintenance, performed by the ground crew, assisted by local personnel where required. It is confined to repairs that can be completed within 50 man-hours.

Field maintenance is performed by the personnel attached to the regiment and lower units, assisted by the mobile repair unit (discussed below), and generally includes ordinary and minor repairs.

In accordance with Soviet practice, the maintenance structure probably includes a mobile repair unit similar to the Soviet PARM attached to each regiment under control and direction of the deputy commander for technical matters. The Soviet regimental mobile repair unit is a small machine shop housed in a removable van mounted on a truck chassis, with two other trucks used for supplies and tools. It has from 7 to 10 maintenance personnel under a unit chief. This unit travels with the regiment and must be prepared to move on short notice. It serves the regiment by making field structural repairs, by machining or repairing small parts, and by stocking special tools. Possibly, there is a larger mobile repair shop collocated with air division headquarters as is customary in the Soviet system, but existence of such a unit has not been confirmed.

Major repair includes the categories of overhaul and repair of damages. These are accomplished by stationary repair shops. Certain of these shops could be more accurately called aircraft repair factories.

(3) *Inspections* — Periodic inspections are for the purpose of detecting wear and damage to airframe, engine, accessories, and vital connections so that necessary field repairs can be accomplished. It is reported that these scheduled inspections are rigidly enforced and conscientiously performed. The extent of the inspection depends upon the accumulated number of flying hours, but the extent also varies with the aircraft type, flying assignment, and climatic conditions. Normally, scheduled inspections are performed at 25-, 50-, 100-, 200- and 500-hour intervals with IRAN (inspection and repair as necessary) at the end of 1,000 flying hours. In addition, there are special seasonal inspections conducted about April and November of each year to prepare the aircraft for summer and winter operations.

Some inspections (preflight and postflight) are performed by the aircraft crew. Others (25- and 50-hour) can be performed by the maintenance squadron which, in the case of light bombers, is stationed at the airfield. There are indications that more extensive inspections are made possible by maintenance squadrons when aided by mobile repair unit personnel and by specialists where required. The 100- and 200-hour inspections must be performed by the maintenance group under command of the air divisions. The more extensive (500- and 1,000-hour) inspections, which possibly require complete overhaul, are performed at permanently situated installations (some of which are called factories) under control of the rear service headquarters. Some of these major overhaul facilities appear to be concerned with assembly and/or production activities.

The preflight inspection consists of a visual check of exterior surfaces, general condition of armament, radios, accessories, instruments, and vital connections. The gasoline and oil quantities are checked, and the engine is power-tested. Any repairs required are made prior to release of the aircraft. After the crew inspection, the pilot is required to make a similar inspection.

Postflight inspection is made after each flight and consists of a visual inspection of airframe, engine, and landing gear. The aircraft is serviced with oil and gas, and all discrepancies reported by the pilot or crew are corrected. After the completion of the day's operation, approximately 2 to 3 hours usually are required for the jet aircaft crew to complete a comprehensive postflight checklist and to clean, service, and repair the aircraft.

In addition, the unit technical officer inspects two or more company aircraft daily. The battalion deputy commander for technical matters inspects 15 or more aircraft each month. The regimental deputy commander for technical matters, or his assistants, inspect 15 or more aircraft each month. These are formal inspections that consist of a detailed postflight type of inspection with the results recorded. The inspecting officers are required to check the results of repairs, and to inspect each over-age part or accessory that cannot be replaced. After the repair of an aircraft, the hangar officer, or a unit technical officer, is required to inspect the aircraft for completeness of work.

General inspections may be made at the direction of the regimental commander to determine the combat and technical status of the regiment. In addition, formal inspection commissions usually function to consider the feasibility of extending the overhaul date of airframes, engines, accessories, and equipment. These commissions consist of the air regiment and battalion deputy commanders for technical matters and selected pilots and mechanics. If, upon inspection of airframes that have reached their service life expectancy, no discrepancies are discovered, the life may be extended 30%. The service life of engines passed by the commission may be extended by 20%.

It is probable that the serviceability rates of CCAF and CCNAF aircraft, which are tabulated in FIGURE 17, are somewhat lower than Soviet rates for comparable aircraft. Peacetime attrition rates (per 100,000 flying

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

FIGURE 17. CHINESE COMMUNIST AIRCRAFT SERVICEABILITY RATES*
(*Percent*)

TYPE OF AIRCRAFT	WARTIME			PEACETIME
	Initial Combat**		Sustained Combat***	
	First 7 days	Second 7 days		
Fighter, jet	80	65	50	70
Ground attack, jet	80	65	55	75
Light bomber, jet	80	55	45	70
Medium bomber, piston	80	60	50	50
Transport, light piston	90	80	70	65
Transport, medium turboprop	90	80	60	55

* Figures for performance of long-range aircraft are based on maximum-range flights. It is possible that all-weather fighters may have a slightly lower serviceability rate under sustained combat conditions due to the additional electronic equipment required for their missions.

** These rates assume a prior standdown of approximately 5 to 10 days. The data further assumes that, before settling down to sustained combat rates, a gradual deterioration of initial material readiness will occur, represented above by two successive 7-day periods. The first 7 days depend primarily upon "standdown maintenance"; the second 7 days are about equally dependent upon prior and current maintenance.

*** Sustained rates are assumed to pertain after the first 14 days, and represent a broad coverage. It is estimated that only under extreme conditions will Communist forces intentionally slight their maintenance practices to a level below acceptable standards. The ratio given above, barring excessive attrition factors, should pertain for approximately 6 months; it should then decline to about 40% to 60%, depending upon actual utilization in particular campaign areas, upon curtailment of production and transportation, and upon depletion of reserves.

hours), however, may be higher than the Soviet order shown below:

TYPE OF AIRCRAFT	PERCENT
Jet fighter	15
Jet light bomber	5
Piston light transport	1

c. EFFECTS OF CLIMATE ON MAINTENANCE — Maintenance problems attributable to the climate of China should not pose unusual maintenance difficulties nor seriously hamper wartime operational flying commitments. Provisions exist for the special seasonal inspections, which are conducted about April and November of each year to prepare all types of aircraft for summer or winter operations. It is expected that the Chinese follow Soviet seasonal practices and by now have gained considerable experience in operating under varied climatic conditions.

3. Relationship of requirements to production

The Communist Chinese are actively pursuing a native missile program. It is believed that the Soviet Union assisted the Chinese in establishing a large missile research and development and production center at Chang-hsin-tien, a suburb located approximately 12 miles southwest of Peking. It is also believed that current efforts are aimed at developing a native 1,000-nautical-mile, medium-range ballistic missile (MRBM) which probably incorporates many characteristics of the Soviet MRBM.

Collateral reports and refugees have indicated that the Soviets assisted the Chinese in establishing missile production facilities at Tai-yuan, 250 miles southwest of Peking. It is believed that several plants are cooperating to produce a surface-to-air missile of the Soviet SA-2 type in modest quantities to maintain the current order of battle. However, it is also believed that the Chinese are engaged in research and development of a native-designed surface-to-air missile.

Other missile systems may be planned for production and procurement. It is known that the Chinese Communists have delivery vehicles for various missile systems such as air-to-air, air-to-surface, and naval missiles. They also have a requirement for coastal defense missiles. Whether they have decided to produce additional missile systems or buy missiles or components on the open market cannot be determined at present.

In the mid-1950's Communist China, with extensive Soviet assistance, was endeavoring to establish a substantial aircraft industry. The principal types of aircraft produced were COLT (An-2), FRESCO (MiG-17), and HOUND (Mi-4). A few (probably 10-20) FARMERS (MiG-19) were assembled from Soviet components. With the withdrawal of Soviet assistance in the early 1960's, the industry suffered a severe setback and all jet fighter assembly activities were terminated. The Chinese continued to product the COLT at a greatly reduced rate and continued work on the expansion of several of the new airframe and engine plants. The facilities are now believed to be basically completed and jet fighters are in production.

Communist China appears to have achieved virtual peacetime self-sufficiency in petroleum. Substantial captial investment in the producing and refining sectors of the industry has led to increased production resulting in the reduction of imports to less than 5% of the avail-

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

able supply. Domestic output of petroleum products in 1965 amounted to about 7.2 million metric tons.

Communist China has recently begun the production of jet fuel in substantial quantities, and currently may be producing as much as 90% of the total supply. However, aviation gasoline is still not believed to be in regular production.

A significant development in overall petroleum logistics is the installation of a national POL reserve or stockpile system consisting of at least 24 underground storage sites. These sites are closely associated with the principal rail and highway lines of communication and are placed in remote areas to provide maximum security from detection and attack. The estimated total capacity of the reserve storage facilities amounts to more than 700,000 metric tons. The products stored cannot be determined from available data, nor can a specific relationship with a military service be established.

The conventional POL storage and distribution system is generally adequate for meeting normal requirements. Although more than 75% of the known distribution facilities and storage capacity is in the more heavily populated and industrialized eastern one-fourth of the country, there has been no evidence of shortages in the more remote western provinces.

4. Appraisal of the logistics system

The Chinese Communist logistics system formerly was largely dependent upon the Soviet bloc for advanced electronic equipment, aviation fuels, and technical supervision. Such rapid advances have been made in production of electronic equipment that almost complete independence has been achieved in this field with the exception of sophisticated electronic testing and measuring devices and computer equipment, which must still be procured from the United Kingdom and Japan. While some 90% of the Chinese Communist requirement for jet fuel is locally produced, practically all aviation gasoline must still be procured from outside sources. Highly qualified technicians, trained either abroad or locally, appear to have removed much of the previous dependence on the Soviets. It is highly probable that the increased collaboration with the Japanese commercial enterprises has been advantageous in the Chinese production of more sophisticated items.

The logistics system is subject to total control of the political authority, which can direct the national economy, assign priorities, control transportation, and exercise other controls to accomplish a desired objective. The system reflects the utilization of technological innovations from the Soviet Union and other Communist countries. Nevertheless, the Chinese Communists appear to have used the foreign innovations as a base on which to develop practices and techniques to meet their own unique requirements.

The supply system is flexible enough to improvise and exploit the limited productive, transportation, and communication capabilities of the country. Land transportation routes are not evenly distributed, but have been considerably expanded since 1955 in order to improve strategic transportation links to the Soviet Union and to newly constructed airfields. The main transportation facilities are supplemented by "coolie logistics," whereby manpower as well as primitive yet numerous carriers are utilized.

The aircraft maintenance system as a whole is well organized, comprehensive, and adequate for present peacetime operations. Six air technical divisions, subordinate to the deputy commander for rear services, administer the supply system and provide all supply support for the operational units, through subordinate air technical battalions and air technical companies. Inspection and repair practices are crude but effective for normal operations. The system is characterized by lavish use of manpower, with minute supervision and control, resulting in excessive out-of-commission times for aircraft.

I. Reserve and mobilization

1. Reserve system

The number of aviation personnel who have been placed in reserve categories is small compared with the estimated number of ground force reservists. The aviation reserve consists primarily of conscripts. The number of conscripts released to air reserve categories since 1955 possibly totals 100,000 to 120,000. It is doubtful that many career personnel have been released except for reasons that would in most instances prevent their recall to active duty.

The Military Service Law established a reserve system of two known categories. Category I, Primary Reserves, is for conscripts who have completed compulsory training and service, noncommissioned officers and officers who have had active duty, and persons in higher educational institutions who have been commissioned. Category II is for persons who have not been drafted because of physical disability, educational, or employment, but are still liable for service, and for women who have been registered. In the initial implementation of the conscription program, many citizens who were over 18 years of age but had not served were placed in Category I and were liable to conscription. Age limits for retention in each category, according to position, are outlined in Conditions of Service, above. Periodic refresher training is required for the Category I reservists, but the frequency and quality of this refresher training are not known.

The reserve system is keyed to long-term national programs for manpower utilization in order to improve economic production. The registration of personnel and thorough system of documentation permits the use of manpower according to the needs of the state. Information regarding procedures for recall of personnel is not available, but the facilities already established for conscription are used.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

2. Mobilization system

The mobilization potential for extension of the CCAF beyond its present size is considerably limited. The primary mobilization resource consists of the conscripts who have been released from service and who may have received limited refresher training. Primary mobilization limiting factors are shortages of material and trained aircrews to augment the forces in being.

The only aircraft immediately available for mobilization are military trainers and aircraft of the General Bureau of Civil Aviation (GBCA). However, the Chinese have demonstrated a capacity for rapid buildup over the past 11 years to one of the largest air forces in the world. If additional aircraft and other materiel became available, the training facilities and personnel for training aircrew and supporting personnel are adequate for moderate expansion.

The GBCA is responsible to the State Council, but some control is exercised by the military. Air operations of GBCA are designed primarily for rapid movement of government officials and other key figures and for airlift of priority cargo. In addition, GBCA engages in extensive special operations. The present Civil Aviation Administration Commission (CAAC) fleet represents a Communist airlift capability second only to that of the U.S.S.R., and it could readily augment the military transports.

In April 1966, the GBCA fleet included 9 medium turboprop (Coot and Viscount), 80 light piston (Cab, Coach, Crate) and 385 small utility (Colt) transports. Pilots are estimated to number around 500.

J. Air facilities

1. General

A comprehensive network of air facilities in Communist China includes about 280 airfields and one seaplane station. Of the total number of airfields at least 130 major installations have runways over 5,900 feet in length with surfaces capable of supporting jet aircraft and turboprop transports.

Except in areas of the west and southwest, the Chinese Communists have an adequate, well distributed air facilities system capable of supporting all types of air operations. A primary objective of the Chinese Communists has been to improve their air defense system by strengthening the airfield network in the eastern section of the country. During the period from early 1954 through late 1959, at least 40 major airfields were developed, and 35 of these are in the area east of 114° East.

More emphasis is now being placed on development of airfields in regions west of 114° East—the area bordering the Gulf of Tonkin and North Vietnam, including the Luichou Peninsula, Hainan Island, southwestern China, Tibet, and western China. The existing airfield system could easily be expanded by the improvement of undeveloped airfields or construction of new installations. In addition, a number of World War II airfield sites could be reactivated and improved.

The following five airfields have concrete runways 10,000 feet or more in length and are capable of supporting jet heavy bombers: Chang-shu, Shuang-cheng-tzu, Canton/White Cloud, Hung-ch'iao and Ching-shui-ho. Thirty-two other airfields listed below are also significant because they have concrete runways ranging in length from 8,000 feet to 10,000 feet and are capable of supporting jet medium bombers.

Chang-ch'iao	Meng-tzu West
Ch'eng-tu/Wen-chiang	Ming-chiang North
Chia-lai-shih	Mukden North
Fu-hsien	Peiping Central
Ho-tien	Peiping/Nan-yuan
Hsing-ch'eng	P'eng-shan
Ku-ch'eng	P'u-lan-tien
K'un-ming	Shih-men
Kung-chu-ling	Sui-chung
La-lin	T'ang-shan Northwest
Lan-chou-wan-tzu	Ts'ang-hsien
Lei-yang	T'u-ch'eng-tzu
Liao-yuan North	T'ung-hsien
Lin-fen	Wu-hsi
Ling-shui	Wu-kung
Lu-ch'iao	Yen-liang

2. Characteristics

In constructing major airfields for jet or turboprop aircraft, the Chinese generally follow a standard pattern that provides for a single hard-surfaced runway over 6,000 feet long; a single long parallel or loop taxiway with link taxiways to parking, dispersal, and maintenance areas; on-base POL storage; housing and storage units; and good logistic access including adequate roads, and in many instances, a rail spur.

The majority of the minor airfields have runways of concrete, clay-bound crushed rock, or graded earth with lengths ranging from 2,000 feet to 6,000 feet. The most important of these airfields have a parallel or loop taxiway and a parking apron. Some are open landing grounds with natural surfaces. Certain airfields used for primary flight training have circular landing areas with diameters of 6,000 feet or more. Facilities at these training bases consist of a small adjacent parking apron, small hangars, shops, warehouses and barracks.

The runways of major airfields, which are capable of supporting medium bombers, usually are at least 8,000 feet in length; those capable of supporting jet fighters and light bombers have lengths ranging from 6,000 to 8,000 feet. Most of the runways have concrete surfaces, but a number have surfaces of clay-bound crushed rock. A few have asphalt surfaces. The majority of the concrete runways probably have foundations composed of layers of compacted soil, gravel, or crushed stone ranging in depth from 10 to 25 inches. The thickness of concrete on the majority of runways designed for sustained jet light bomber or fighter operations probably ranges from 7 to 10 inches. The concrete runways capable of supporting jet medium bombers probably have a greater thickness; the concrete on the runways at Chang-shu and Shuang-cheng-tzu Airfields may be as thick as 25 inches.

DECLASSIFIED
Authority NND 45337
By JW NARA Date 9/2/10

The taxiway system for the majority of major airfields consists of a single hard-surfaced parallel or loop taxiway, about 50 to 90 feet wide with access links and loops to adjacent dispersal areas. Most of the airfields have from 20 to 32 concrete hardstands with U-shaped earthern revetments with blast openings in the back. Revetments for jet fighters have entrances varying in width from 48 to 75 feet. Revetments for jet light bombers vary in width from 95 to 110 feet. There is usually an alert apron at each end of the runway or main taxiway. Other parking facilities are usually along the main taxiway and generally consist of one or two aprons ranging from 1,000 to 2,500 feet in length and 150 to 350 feet in width.

Modernization of landing aids has increased Chinese capability for all-weather and night operations. Nearly all of the major airfields have a control tower, a radar ground-controlled approach system (GCA), and an instrument landing system. The instrument landing system includes inner and outer nondirectional radio beacons located on the center line of the runway at about 3,000 and 13,000 feet from the ends of the runway. Other types of navigational equipment at nearly all operational airfields include direction finders and nondirectional radio homing beacons which are the principal point-to-point navigational aids. Most of the major airfields probably have fixed runway and approach lights and other standard lighting facilities including boundary, obstruction, identification, and floodlights. Some of the minor airfields have mobile runway lighting consisting of kerosene lamps or flares.

As in the U.S.S.R., most of the major maintenance and overhaul of aircraft in Communist China is accomplished by central maintenance depots, each of which serves many operational bases. In addition, the major military airfields usually have one or two hangars ranging in length and width from 90 to 170 feet and several small shops for less extensive repairs and minor maintenance.

The major airfields usually have a POL storage area from a quarter mile to one mile from the runway, and many have an additional POL storage from one to three miles away. Each POL storage area usually includes semiburied tanks, or bunkers containing tanks, connected by pipeline to one or more pump houses. The area is served by a rail spur or road and usually contains one or more lubricant storage buildings. Refueling trucks are the predominant means of dispensing fuel to the aircraft. Fuel storage capacity for these airfields probably ranges from 600,000 to 1,000,000 gallons.

Most major military airfields also have an ordnance storage area located at a safe distance from the airfield building and parking areas. These consist of earth-covered bunkers or revetted single-story buildings. The major airfields usually have a housing and administration area consisting of one- and two-story masonry or wooden barracks and one or more general storage areas containing single-story buildings.

Except for some areas of western China, there are adequate systems of transportation for the logistic support of airfields. These systems include important rail lines, road networks, and the great rivers of China—the Yangtze (Ch'ang Chiang) and Yellow River (Huang Ho)—with their connecting waterways. Spurs from the important rail lines serve most of the major airfields in the east. The chief method of logistic support for the coastal airfields in the region opposite Taiwan has been water transport which has involved large-scale employment of small craft.

Rail systems have been nonexistent in vast areas of western and southwestern China and the principal means of access to airfields in these regions has been by road. However, the Chinese are gradually extending their rail systems to the west and southwest so that most of the important airfields in the interior will have rail access.

Typical Chinese Communist airfields are shown in FIGURES 18 through 20. Detailed information on individual air facilities is available in Volumes 30 and 31, *Airfields and Seaplane Stations of the World,* published by the Defense Intelligence Agency.

3. Distribution

As indicated on the airfield location map, FIGURE 23, the greatest concentrations of airfields are in that portion of China east of 114° East. Two basic reasons for development of heavy concentrations of airfields in this region are: 1) the necessity which arose for a strong air base complex in northeast China to support air operations during the Korean War period, and 2) the desire of the Chinese Communists to improve their air defense system by the construction of airfields in the east.

Distribution of airfields in the area of northeast China, formerly known as Manchuria, reflects Japanese developments from 1931 to 1945. Concentrations of airfields were developed to afford protection to industrial centers, ports, and principal railroad lines. Development of the airfield system from 1950 through 1953 was to a large degree directed toward reconstruction of former Japanese airfields.

The northern boundary of northeast China's network of major military air bases extends from the northwest, in the Hailar (Hai-la-erh) area southeastward through Ch'i-ch'i-ha-erh and Harbin (Ha-erh-pin) to Mu-tan-chiang. Airfields are concentrated in the southern portion of the Kwantung Peninsula and in the An-tung/Ta-tung-kuo area along the Yalu River. Other airfield complexes are located at Ch'ang-ch'un, Mukden, and Harbin.

In the eastern section of China, and in portions of the interior, there are well-spaced chains of airfields so arranged as to support both offensive and defensive air operations. Airfield complexes have been developed at the following key centers: Peking, Tsingtao (Ch'ing-tao), Shanghai, Hankow (Han-k'ou), Nan-chang, Sian, and Ch'eng-tu. The 37 most important airfields in China are well distributed throughout the network for long range bombing operations against non-Communist areas to the east, south, and southwest.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

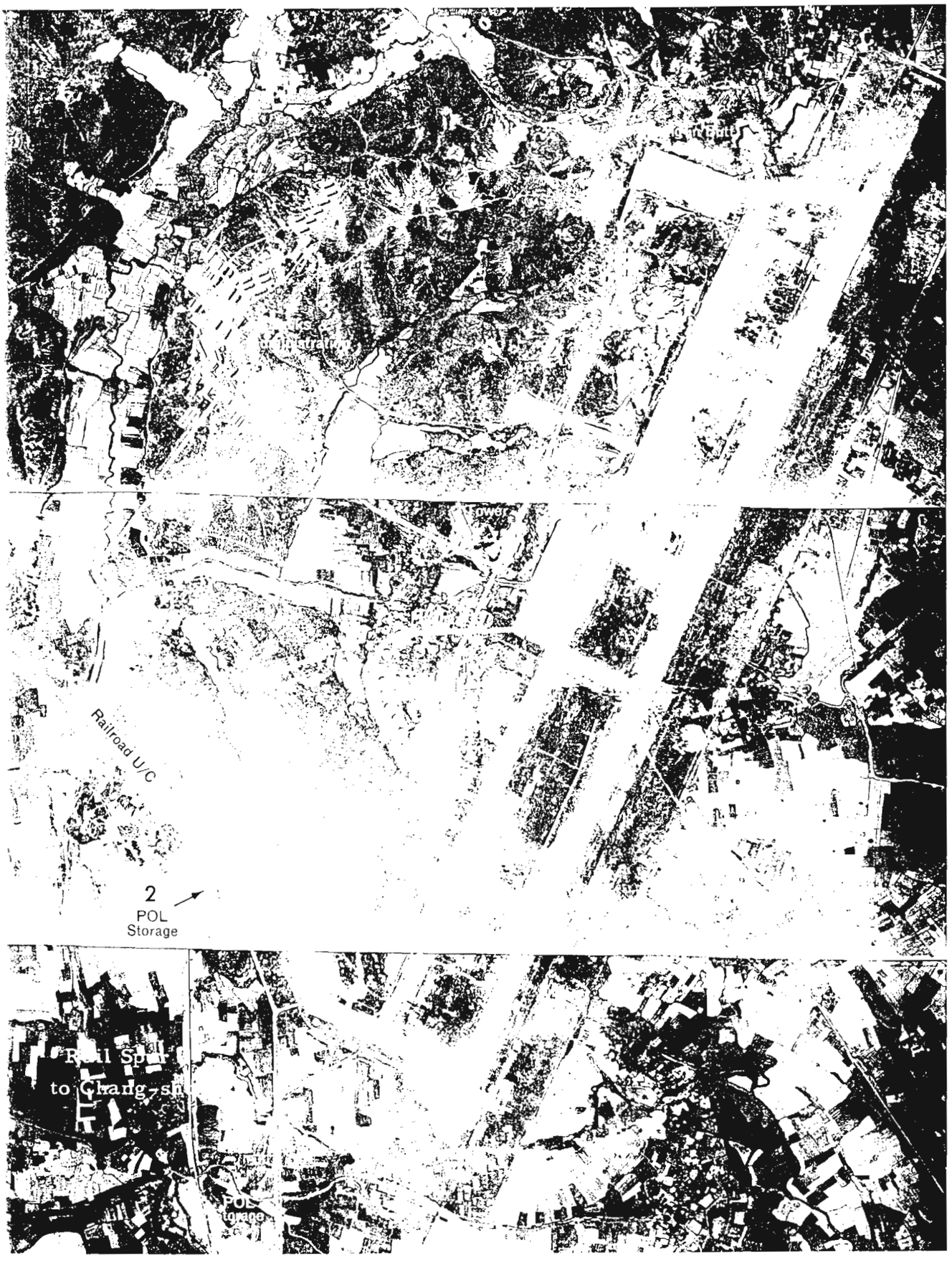


FIGURE 18. CHANG-SHU AIRFIELD. This airfield, considered to be the most important in Communist China, is located in the Nanchang complex. It has a concrete runway of 12,400 feet and is capable of supporting jet heavy bombers.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

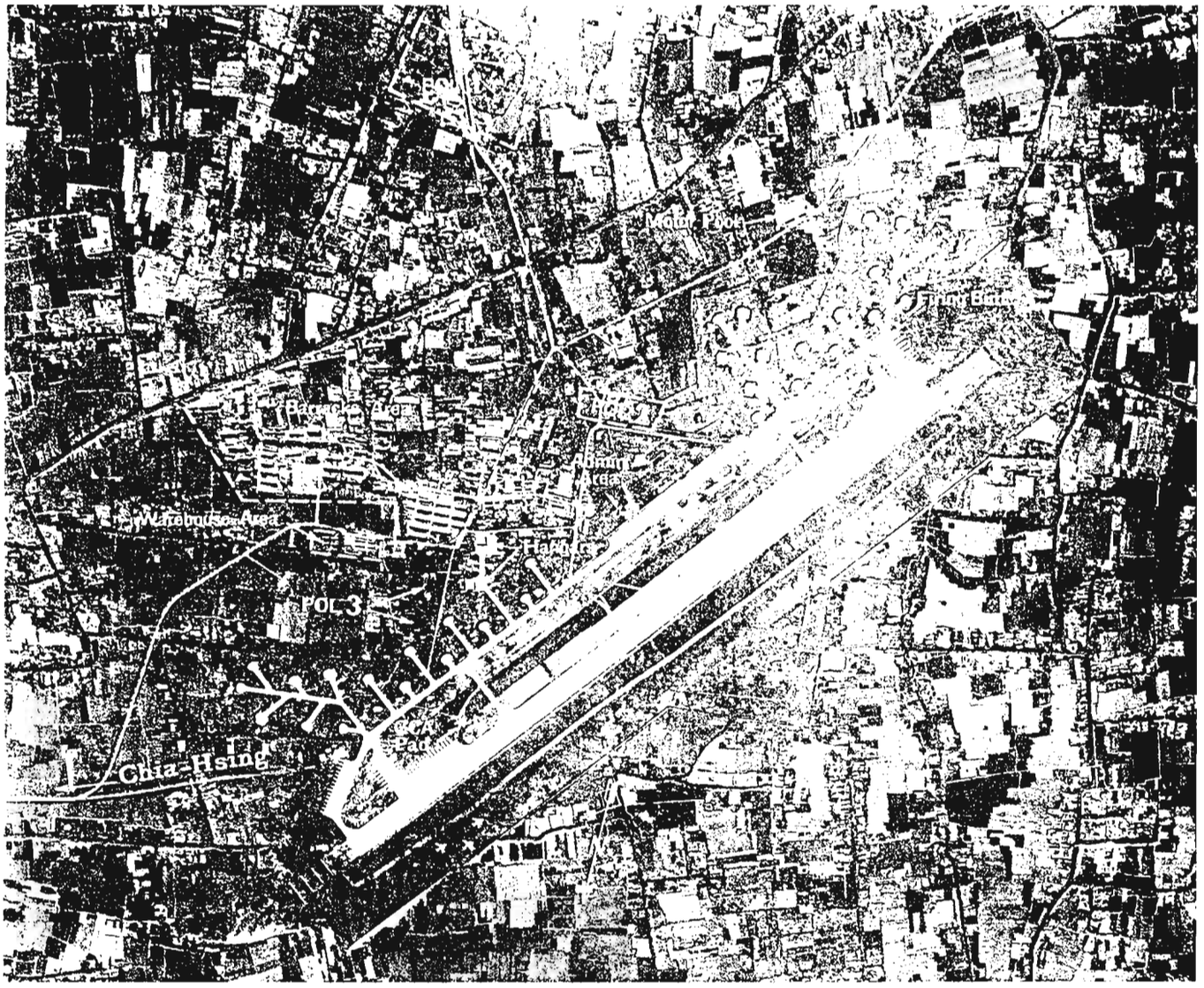


FIGURE 19. CHIA-HSING AIRFIELD. Located about 60 miles southwest of Shanghai, this is one of the 14 airfields developed in East China during the Korean War. It has a typical pattern for jet fighters and light jet bombers. The runway was recently extended from 6,600 feet to about 7,300 feet.

Vast areas of western China and Tibet have no airfields. In this region, where there is a great expanse of desert and high rugged mountains, airfield construction is difficult because of inadequate logistical support. Nevertheless, many important towns in western China have airfields capable of supporting light transport aircraft and an airfield development program has been underway in this remote region to improve air transport service and support military activities.

The Shuang-ch'eng-tzu Airfield, which was constructed in the missile test area at Shuang-ch'eng-tzu, has a 13,500-foot concrete runway capable of supporting jet heavy bombers. In late 1965, a 10,600-foot concrete runway was under construction at Wu-sha-ta-la, about 140 miles northwest of the Lop Nor Atomic Test Site, in Sinkiang. Upon completion, this runway will probably be able to support at least piston or jet medium bombers. Eight additional airfields have been completed or are under construction in western China and Tibet which are or will be capable of supporting jet fighters and light bombers.

4. Historical development

a. WORLD WAR II PERIOD — Airfield development in China prior to 1931 consisted primarily of the construction of airfields at principal cities and towns to accommodate transport aircraft and a few military air installations at strategic locations. The first effective impetus toward development of a military airfield system occurred when Japan occupied Manchuria in 1931. In the following years and until the close of World War II, the Japanese developed a widely dispersed and comprehensive airfield network throughout Manchuria and eastern China. These airfields were built to the operational requirements of Japanese piston aircraft. Complementing this development, the U.S. forces in their offensive operations of World War II developed a number of airfields in central and south central China capable of supporting B-29 medium bombers.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

FIGURE 20. CH'ING-YANG AIRFIELD. This airfield, with a 6,000 foot runway, is one of the coastal airfields opposite Taiwan constructed during the period 1955-56.

POST WORLD WAR II PERIOD — After the close of War II, the United States and Chinese National- es rehabilitated a number of unserviceable air- nd used them for light piston aircraft operations. time of the complete withdrawal of the National- m the mainland of China in 1949, the Chinese mists controlled about 370 airfields, most of which rmer Japanese installations. There were large rations of these in the Great Central Plain of ria and the plain of northeast China, north of the River, where the terrain is favorable for large- rfield development. Other former Japanese air- ere well dispersed in the valleys of the mountain- s of China, south of the Yangtze River. There veral concentrations of large former U.S. air- the valleys of central and south central China. airfields were scattered throughout northwest Airfield development in west and southwest ad been limited because of the generally un- le terrain.

KOREAN WAR PERIOD — In late 1949 and early e Chinese Communists repaired some of the air- eastern China and placed them in a caretaker Shortly after signing of the Sino-Soviet Pact in February 1950, Soviet advisers, technicians, and engineers entered the country to plan and direct the development of strategically located air bases. Most of the construction effort was spent in rebuilding existing airfields to meet specifications for jet operations. The Soviet basic design for jet airfields was generally followed; i.e., a single hard-surfaced runway, a single hard-surfaced parallel or loop taxiway with adjacent parking and dispersal areas, and a minimum of fixed installations such as hangars, shops, and miscellaneous buildings.

From June 1950 to July 1953, the period of the Korean conflict, a growing airfield network appeared, which seemed to parallel the politico-military course that Sino-Soviet planners were following. Fearing that Korean combat operations might spread beyond the Yalu River the Chinese Communists sped airfield construction in northeast China. As a result, a strong air base complex of about 40 airfields suitable for jet fighters and light bombers was developed in this area.

Although the major airfield construction effort during the Korean War was centered in northeast China, long-range objectives in other areas were not completely neglected. Two of these were the strengthening of the air-

DECLASSIFIED
Authority NND 45 333
By JW NARA Date 9/2/10

field network opposite Taiwan to increase air defensive and offensive capability, and the development of an airfield system throughout China to permit adequate deployment of aircraft and rapid air transportation to centers in the interior, border areas, and other coastal regions.

In the region opposite Taiwan, 14 airfields were developed during the Korean War period. This development included 4 large airfields in the immediate vicinity of Shanghai and 2 at Canton. The remaining 8 were developed in an area about 600 nautical miles from Taiwan, extending from the Shanghai/Nanking complexes to the Canton complex. In the interior, major airfields were constructed along important rail lines leading from Peking to Shanghai, Hankow, and Hsian.

d. PERIOD FROM MID-1953 THROUGH LATE 1965 — Since late 1953, the Chinese Communists have continued to strengthen their entire air facility system through the construction of large airfields. During the period of the Korean War, the major airfields generally had runways varying in length from 6,600 feet to 7,200 feet, which were capable of supporting jet light bombers and fighters. In the years following the Korean War, longer runways appeared, including runways over 8,000 feet which gave 5 airfields the capacity to support jet heavy bombers and 32 others the capability of supporting jet medium bombers. These major airfields are well distributed for bombing operations against areas to the east, south, and southwest.

Construction has added depth to the airfield network in eastern China. It is estimated that during the period from late 1953 through 1955, runways about 8,000 feet long were developed at the following airfields in northeast China: Fu-hsien, Kung-chu-ling, Liao-yuan North, Fu-lan-tien, and T'u-ch'eng-tzu. By mid-1961, the runway at Mukden North Airfield had been extended to 8,000 feet in length. The former Japanese airfield, La-lin, in the Harbin area, was reconstructed and a new 8,400-foot concrete runway was completed by August 1963.

In the Peking-Tientsin (T'ien-ching) area five airfields were developed between 1955 and 1960. Of these, three have runway lengths over 8,000 feet—Peiping Central, Ta'ang-hsien, and T'ung-hsien. Two others—T'ang-kuan-t'un and Tientsin—have runways over 6,000 feet in length. Airfield construction has continued in this area since 1960. A concrete runway, 10,000 feet long was constructed at a new airfield, Ching-shui-ho, about 150 miles northwest of Peking. A 7,500-foot concrete runway was in the final stage of construction in late 1965 at Tung-hsin-chuang, about 70 miles east of Peking.

Some gaps have been filled in the coastal airfield network to the south. Lei-yang Airfield was constructed on the Shantung Peninsula halfway between the Yen-t'ai South Airfield, on the north coast of the Peninsula, and the Tsingtao complex. Chu-ch'eng, Tung-hai West, and Hsu-ch'eng were constructed between Tsingtao and Shanghai. In 1965 a new airfield, Mo-tou, was constructed with a 7,200-foot concrete runway about 75 miles north-northwest of Shanghai.

The airfield network in the area opposite Taiwan has been strengthened by the development of three distinct chains of airfields at varying depths from the coast, which connect the Shanghai and Canton complexes. By late 1957, there were eight major airfields forming the first chain along the coast: Chang-ch'iao, Lu-ch'iao, Fu-chou/Nan-t'ai, Lung-t'ien, Hui-an, Ch'ing-yang, Lung-ch'i, and Swatow Northeast. Additional construction on this first line of defense, which was completed by late 1960, included extension of runways at Chang-ch'iao and Lu-ch'iao airfields to 8,200 feet.

By late 1959, a second chain had been formed in an area about 150 miles from the coast. It included seven airfields: Chia-hsing, Hang-chow, Ch'u-hsien, Ch'ung-an, Lien-ch'eng, Hsing-ning, and Shui-k'ou.

A third chain about 250 miles from the coast had also been formed by late 1959. It included seven major airfields: Wu-hsi, Nanking/Ta-chiao-chang, Wu-hu, Nan-ch'ang New, Hsiang-t'ang, Chang-shu, and Hsin-ch'eng. In late 1964, an addition was made to this line when a new airfield with a 7,200-foot concrete runway was constructed at Tan-yang, about 150 miles northwest of Shanghai. Chang-shu Airfield, which has a 12,400-foot runway capable of supporting jet heavy bombers, is a midway point in the chain.

Supporting the three lines in the forward area opposite Taiwan, is another chain of airfields leading from Peking through the Hankow complex to Chang-sha. Here projections reach out to the south forming a network that connects Canton, Hainan Island, and North Vietnam to other centers in Communist China.

A major construction project was completed along the Peking/Chang-sha line about 125 miles north of Hankow, probably in 1957 or 1958. This was the construction of Ming-chiang North Airfield, with an 8,900-foot concrete runway, at a point centrally located between northern and southern complexes and between complexes to the west and east. Another significant development along this chain was the construction in 1959 of a 7,800-foot concrete runway at Shan-p'o Airfield in the Hankow complex. In late 1965, the northern part of this chain was being strengthened by the construction of an 8,200-foot concrete runway at Sha-ho Airfield, 235 miles south-southwest of Peking.

Emphasis is now being placed upon filling gaps in the south and southwest sections of the airfield network. In the years between early 1960 and late 1964, the following large airfields were constructed in this region: Lei-yang, Nan-ning South, Ling-shui, Meng-tzu West, and Pei-t'un. All five of these have concrete runways over 7,800 feet in length capable of supporting BADGER or BEAGLE aircraft.

Airfield construction continued in the North Vietnam border region during 1965. A 7,600-foot concrete runway was being reconstructed at Li-chia-ts'un Airfield, located in a chain of air installations leading towards North Vietnam. Early in the year, the construction of a

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

new airfield, Ning-ming, provided a base near the northeast end of the border with a 7,600-foot concrete runway suitable for jet fighter or light bomber operations. Near the center of the border region a concrete runway at least 7,200 feet long is being constructed at a new airfield, T'ien-yang. Near the northwest end, about 30 miles east of Meng-tzu West, there is another airfield, Ping-yuan-chieh, with an 8,100-foot concrete runway in the final stages of construction. In mid-1965 an 8,200-foot concrete runway was completed at Chia-lai-shih Airfield, near the northwest end of Hainan Island.

Since 1953, major airfields have been developed which form an arc through the interior from the Peking airfield complex to the North Vietnam border. Included among the important interior airfields along the northern half of the arc are Shih-men, Lin-fen, and the Sian complex, which has two installations with runways over 8,000 feet—Wu-kung and Yen-liang.

Falling within the arc to the southwest of Sian is the complex at Ch'eng-tu, where there are eight former U.S. airfields which are serviceable. These airfields form a base complex from which flights can be conducted towards the borders of southern China and over valleys to the west leading to the airfields at Kan-tzu and Yu-shu and on to Lhasa, Tibet. The following three airfields in the Ch'eng-tu complex have been reconstructed with concrete runways over 7,000 feet long since 1960 and are capable of supporting jet aircraft: Ch'eng-tu/Shuang-liu, Ch'eng-tu/Wen-chiang, and P'eng-shan. By mid-1960, significant construction had been completed at K'un-ming Airfield at the southern end of the arc. By extending the runway to 9,800 feet, the Chinese Communists increased the capability of this airfield to support jet medium bomber aircraft.

An airfield development program has been underway in western China and Tibet to improve air transport service and support the military buildup in this region. The most significant airfield construction project undertaken in western China was the development of Shuang-ch'eng-tzu Airfield, located in the missile test area at Shuang-ch'eng-tzu. About 1959, a runway was completed at this location which measures 13,500 feet in length and has the capability of supporting jet heavy bombers.

In late 1965, an 8,200-foot concrete runway was under construction at a new airfield, Lin-t'ao, about 30 miles south of Lan-chou, historically the gateway to western China. Since 1960, four major airfield construction projects have been undertaken along the northwest corridor through Kansu Province and into the Sinkiang Uighur Autonomous Region. Concrete runways over 7,000 feet in length capable of supporting jet fighters were completed at Wu-wei and Chang-yeh Southeast Airfields. In late 1965, a 7,200-foot concrete runway was under construction at Ha-mi (Two) Airfield, and an 8,800-foot concrete runway was completed at a new airfield, Lan-cho-wan-tzu, near Ti-hua, the capital of Sinkiang.

A 10,600-foot concrete runway was under construction in late 1965 about 80 miles south of Ti-hua at Ho-shih (Wu-sha-t'a-la), Sinkiang. Upon completion of the runway, this airfield, which will have the capacity of supporting medium piston or jet bombers, will probably be used in connection with activities of the Lop Nor Atomic Test Site, 140 miles to the southeast. Also during 1965, major construction was completed at a point on the southwest Sinkiang border, Ho-tien Airfield, where there is now a new 9,500-foot runway capable of supporting jet light bombers.

Since 1955, the following airfields were developed in a chain of installations extending from Lan-chou into Tibet: Hsi-ning, with a 7,000-foot runway; Ka-erh-mu, with a runway of 11,500 feet, and Lhasa, with a runway of 14,500 feet.

The Chinese Communists are continuing the program of airfield development to remove other deficiencies in the air facility network. In order to meet the needs for international expansion of air transport services, they have completed two major airport construction projects at Canton and Shanghai. The introduction of scheduled flights into China by Pakistani Airlines necessitated the improvement of airport facilities at these two cities to support the Boeing 720B jet transport. The Hung-ch'iao Airfield at Shanghai and the Canton/White Cloud Airfield at Canton were reconstructed in late 1963 and early 1964, and the existing single runways at these locations were lengthened to 10,300 feet and 11,400 feet respectively and resurfaced with concrete.

5. Construction practices

Former U.S. and Japanese airfields have been the sites for the majority of airfield construction projects. In the interior, the Chinese Communists are maintaining a number of World War II runways of clay-bound crushed rock. In some areas of China it was necessary to select new sites for construction in order to improve the distribution of airfields for effective military operations. In the mountainous areas of western and southwestern China, where elevation ranges from 6,000 to 17,000 feet above sea level, it was necessary to select airfield sites in valleys or plateaus large enough to permit construction of runways over 9,000 feet long. Long runways are required in these regions to offset the effects of high elevation on aircraft performance.

In constructing most of the major airfields, the Chinese Communists use readily available mass coolie labor and a minimum amount of mechanical equipment. However, in instances when extensive leveling is necessary, large numbers of tractor-towed earthmoving vehicles are used. They select sites for major runway construction that are generally extensible to over 9,000 feet and which have clear approaches. The initial stages in construction include some or all of the following processes: clearing of the area, construction and improvement of roads and dikes, and construction of drainage systems and a rail spur to runway site. The succeeding stages are leveling of the runway area, stockpiling of materials, improvement of runway subgrade, and preparation of foundations for taxiways, parking aprons and hardstands.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

Where there are revetted dispersal areas, earthen walls are constructed for revetments. Work is then begun on POL storage areas and building areas. The final stages are the completion of runway, taxiway and parking surfacing; completion of POL storage areas and buildings; and where there is a rail spur to the runway, relocation of the end of the spur from the runway to the POL storage area.

The surface of most of the runways at major airfields is usually poured concrete. Until late 1953, concrete surfaces on a number of runways were laid in hexagonal blocks, about 6½ feet in diameter, bound with bitumen. It is believed that in the construction of many of the long concrete runways capable of supporting medium or heavy bombers, the Chinese Communists have relied more heavily on mechanized equipment. The method probably used is to lay a number of lanes of rectangular slabs over the length of the runway. As in Soviet practice, it is probable that stationary mixers are used, and the mixed concrete is transported over a temporary, narrow-gage work railroad. Rail-riding machines are probably used to spread and finish the concrete, and joints are probably sealed with bitumen.

Since 1955, there have been improvements in landing aids. The Chinese Communists have increased their capability for all-weather and night operations by equipping a number of important airfields with a radar ground-controlled approach (GCA) system. They have probably also installed modern lighting equipment at many airfields including permanent electric runway and approach lights as well as boundary, obstruction, identification, and floodlights.

6. Projected development

Reports indicate that while the Chinese Communists are still continuing to strengthen the eastern portion of the airfield network, they are placing more emphasis on the development of airfields in other regions, particularly the North Vietnam border region and western China. In the eastern section, two important airfields are under construction—Tung-hsin-chuang and Sha-ho. In the area bordering North Vietnam, the following three airfields are being developed which, when completed, will be capable of supporting jet fighters and light bombers: Li-chia-ts'un, T'ien-yang, and Ping-yuan-chieh. In western China, major airfields are being developed at Lin-t'ao, near Lan-chou; Ha-mi (Two), in northern Sinkiang; and at Ho-shih (Wu-sha-t'a-la), in central Sinkiang.

K. Means of identification

1. Aircraft

The CCAF/CCNAF military aircraft insignia (FIGURE 21) is painted on both sides of the rear portion of the fuselage, on the upper surface of the outer wing panels and, possibly, on the underside of the outer wing panels. The symbol in the center of the star is the Chinese charactor "8–1," which commemorates the date of establishment of the Chinese Communist Armed Forces (1 August 1927).

FIGURE 21. CCAF AIRCRAFT MARKINGS

2. Unit identification

Operational air divisions of the CCAF are numbered consecutively from the 1st through the 35th. In addition, there are several independent air regiments numbered consecutively, but only five or six are known to be operating aircraft at present.

3. Uniforms and insignia

On 24 May 1965, the Standing Committee of the National People's Congress decided to abolish military ranks and insignia of rank. The decision, which was implemented on 1 June 1965, stipulated that the uniform of the CCAF should be of the same cut and material as those of the other services but khaki in color. The hard-peaked headgear has been replaced by the "Chieh Fang (Liberation) Cap" which is worn by all personnel. The "Sam Browne" style belt for officers has been discontinued and replaced by a waist belt issued to all officers and enlisted men.

All insignia, shoulderboards, and collar tabs, which previously had indicated military rank and the various branches and services, were abolished. The new headgear insignia is simply a red star, while plain red tabs appear on the collar. A white cloth rectangular patch, with the inscription "Chinese People's Air Force" (in Chinese characters) may be worn on the left breast of the uniform coat. The wearers' name and title of his position may also be indicated on the patch. CCAF uniforms and insignia are shown in FIGURE 22.

4. Rank

The system of personal military ranks, initiated in February 1955, was abolished as of 1 June 1965. The command structure which remains probably resembles the pre-1955 system in the PLA. Officers and enlisted men probably are known by the position held, such as "squadron leader," "navigator," "radioman," or simply as "comrade." The decision to abolish the 10-year-old system of personal ranks—and of insignia—was politically inspired. It was the intention of Communist China's aging leaders to recreate a revolutionary armed force along the lines which had proved so successful in the years of combat leading to victory over the Nationalists. It is an attempt to prevent the emergence of a privileged officer class and to assure a close identity among the men of the armed forces and between them and the people.

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

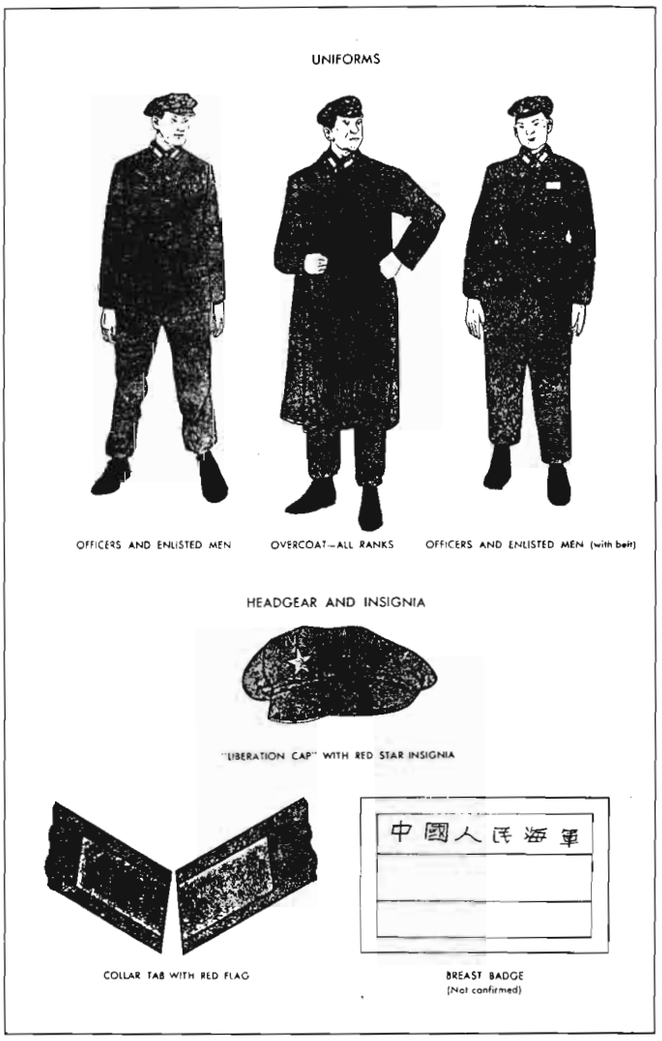


FIGURE 22. CCAF UNIFORMS AND INSIGNIA

DECLASSIFIED
Authority NND 45 337
By JW NARA Date 9/2/10

Part II. Chinese Communist Naval Air Force

A. Development, organization, and significance

The land-based Chinese Communist Naval Air Force has over 450 aircraft in operational units and a personnel strength of about 18,000 which includes 850 pilots.

The CCNAF has a three-fold mission: coastal air defense, air support of amphibious operations, and maritime reconnaissance and attack. The large expanse of Chinese mainland coastal areas and the small size of the navy require that the CCNAF be a flexible and effective organization and cooperate closely with the CCAF. In recent years the CCNAF has been assigned a greater portion of the aerial defense of China, although it is believed that its primary mission is to protect important naval installations and close-in surface forces. It is now considered that the CCNAF is as capable as the CCAF of accomplishing its assigned mission.

The nucleus of Chinese Communist naval aviation was established with the founding of a naval aviation school near Tsingtao in late 1950. Soviet advisory personnel, as well as some CCAF personnel, formed the first staff and training group. Students were drawn in part from the CCAF schools, although it is likely that others were selected from the navy for naval aviation training. Until January 1953, this school apparently was engaged in training activities preparatory to the formal creation of a naval aviation structure. In January 1953, naval aviation was established as an integral element of the Chinese Communist Navy. In late 1953, naval aviation had the nuclei of two operational air divisions (one fighter and one light bomber) with a strength of about 80 piston fighters and light bombers and 10 jet light bombers.

Aircraft strength increased gradually until mid-1956, when the estimated authorized strength was 255 aircraft, which included 87 fighters (37 jets), 64 jet light bombers, 84 piston light bombers, 10 light transports, and 10 piston reconnaissance types. Personnel strength at that time was 4,700, including about 600 pilots.

It is estimated that the CCNAF had the following aircraft in operational units as of April 1966:

Jet fighter	235
Jet light bomber	118
Prop light bomber	20
Prop ASW	6
Prop light transport	*71
Helicopters	5

* Includes approximately 50 An-2 small prop transports.

Some 30 of the jet fighters have capability for limited or all-weather operations. The CCNAF has about 9 jet fighter regiments, 6 jet light bomber regiments, and 1 propeller light bomber regiment at this time.

The CCNAF is subordinate to the Commander in Chief of the Navy and subordinate command is exercised by commanders of naval districts. Naval headquarters in Peking issues operational directions to the CCNAF air divisions through commanders of the three fleet headquarters. A deputy for naval air supervises development of the naval air force, but does not directly control any operational units. The commander of the Air Defense Command may request support by the CCNAF for air defense purposes. In such instances, the channel of command is probably directly from Peking headquarters to headquarters of air divisions.

The air division is the largest operational element of the CCNAF. Normally, it consists of three air regiments, but some are not up to full strength and consist only of two air regiments.

The relationship of the CCNAF to the navy and the ground and air elements of the PLA, particularly the Air Defense Command, is shown in FIGURE 3.

B. Training and operational procedures

CCNAF pilot training, proficiency, and tactics are similar to those of the CCAF described in PART I of this Section. Personnel are in a continuous state of training and are gradually improving in individual proficiency.

Operational procedures and tactics of the fighter and bomber units are similar to their counterparts in the CCAF, and follow the Soviet pattern.

C. Air facilities

1. General

Fourteen airfields and one seaplane station are used by naval aircraft. The airfields are: Chang-ch'iao, Chiao-hsien, Chin-hsi, Hai-k'ou, Hsin-ch'eng, Lai-yang, Ling-shui, Lin-yu South, Liu-t'ing, Lu-ch'iao, Ta-ch'ang, Tsingtao, T'u-ch'eng-tzu, and Yen-tai South. The seaplane station is located at Tsingtao.

Naval air facilities are adequate for support of the types of aircraft assigned to the Chinese Communist Naval Air Force. They contribute to the overall offensive and defensive air capability of the Chinese Communists because all of the naval airfields with the exception of Chin-hsi have the capability to support jet light bombers and fighters. Four airfields—Chang-ch'iao, Lu-ch'iao, Ling-shui, and T'u-ch'eng-tzu—can also support jet medium bombers. The Chin-hsi Airfield can support piston fighter and light bomber aircraft. The

DECLASSIFIED
Authority NND 45 333
By JW NARA Date 9/2/10

otential for expansion of the naval air base system is almost unlimited because there are many additional airelds in the coastal regions of China.

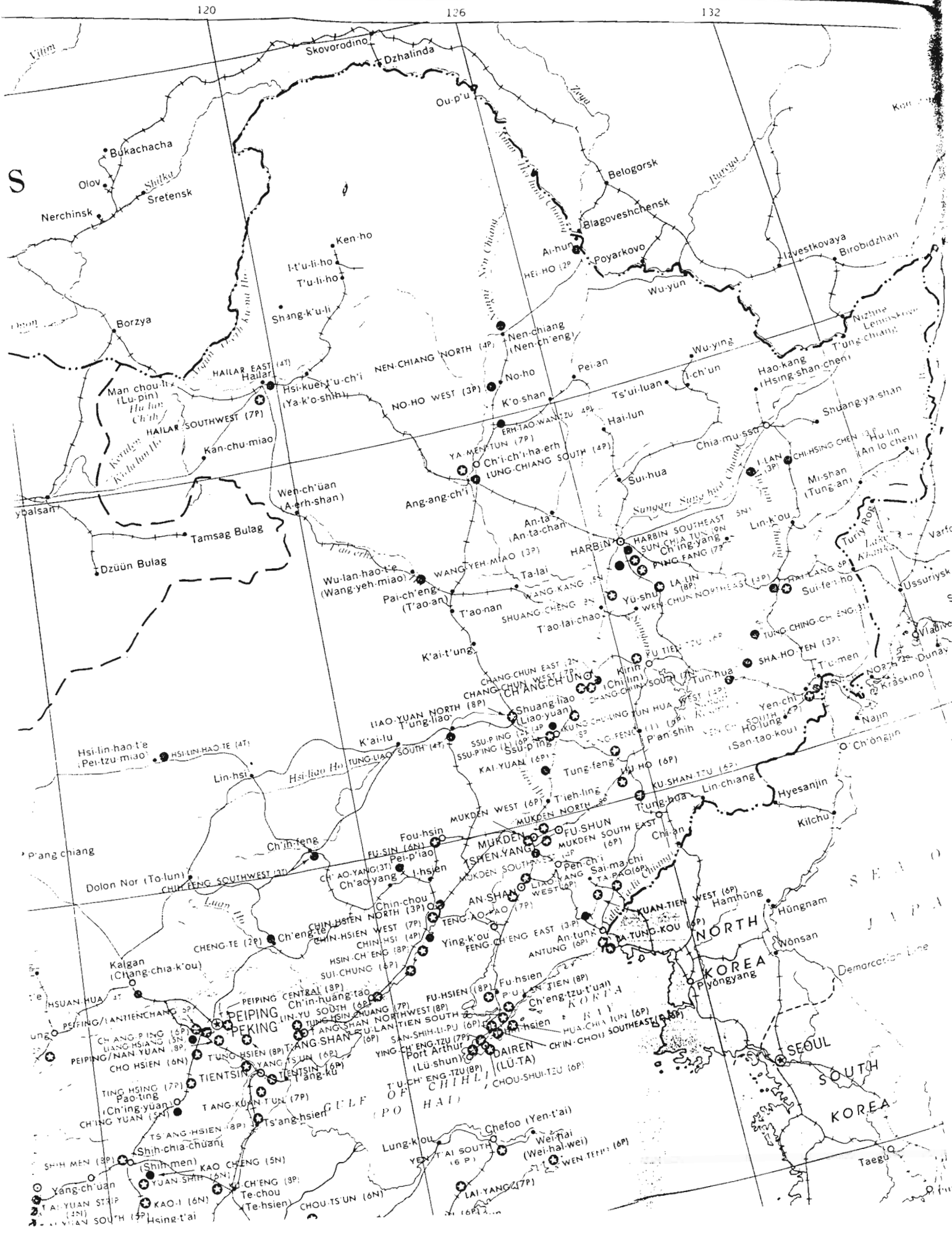
Naval airfields have the same general characteristics airfields that support similar aircraft of the CCAF. he four airfields capable of supporting jet medium ombers have concrete runways over 8,000 feet in length. lost of the major naval airfields have from 20 to 30 rcraft revetments for dispersal and one or two hangars ith adjacent shops for performance of field-level airaft maintenance. Tsingtao and T'u-ch'eng-tzu Airfields ave several hangars. Usually, one or two POL storage eas are on naval airfields, each containing semiburied nks, or bunkers containing tanks, connected by pipeie to one or more pump houses. The fuel storage apacity for these airfields probably ranges from 600,000 1,000,000 gallons. Lighting facilities, a radar ground-controlled approach system, a beacon approach landing system, and a direction finder are believed to be available at the more important naval airfields.

The Tsingtao Seaplane Station, which was formerly used by Japanese and later by U.S. seaplanes, is now used by MADGE aircraft. The installation has two landing and takeoff areas about four miles long with ample depth. Fixed installations include two concrete ramps, an operational building, several workshops, and barracks.

2. Distribution

The naval air facilities are well distributed along the coast at important points, including the principal ports of Port Arthur, Tsingtao, and Shanghai. A concentration of naval air facilities at Tsingtao includes Tsingtao Seaplane Station and Chiao-hsien, Liu-t'ing, and Tsingtao Airfields.

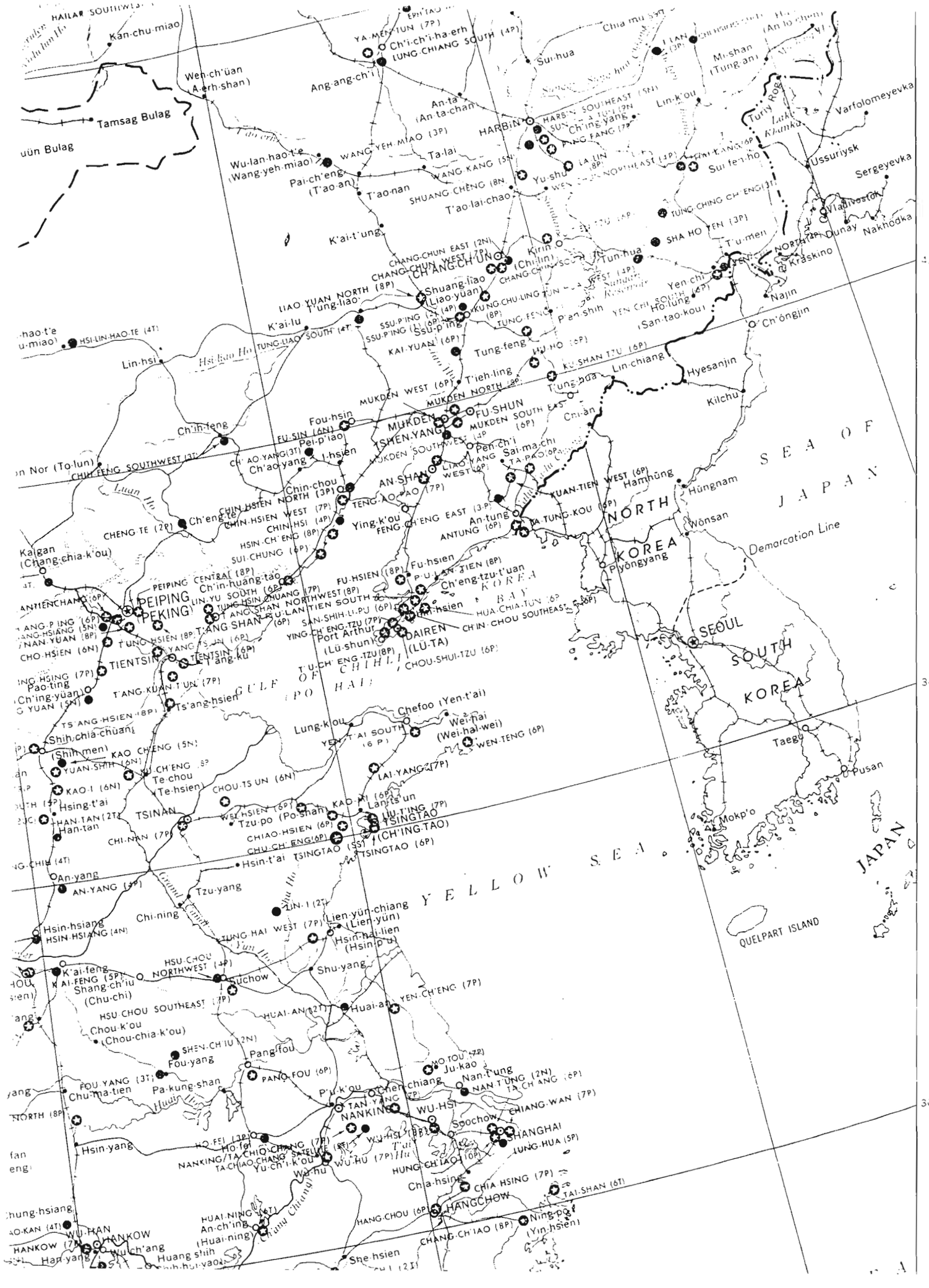
DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10



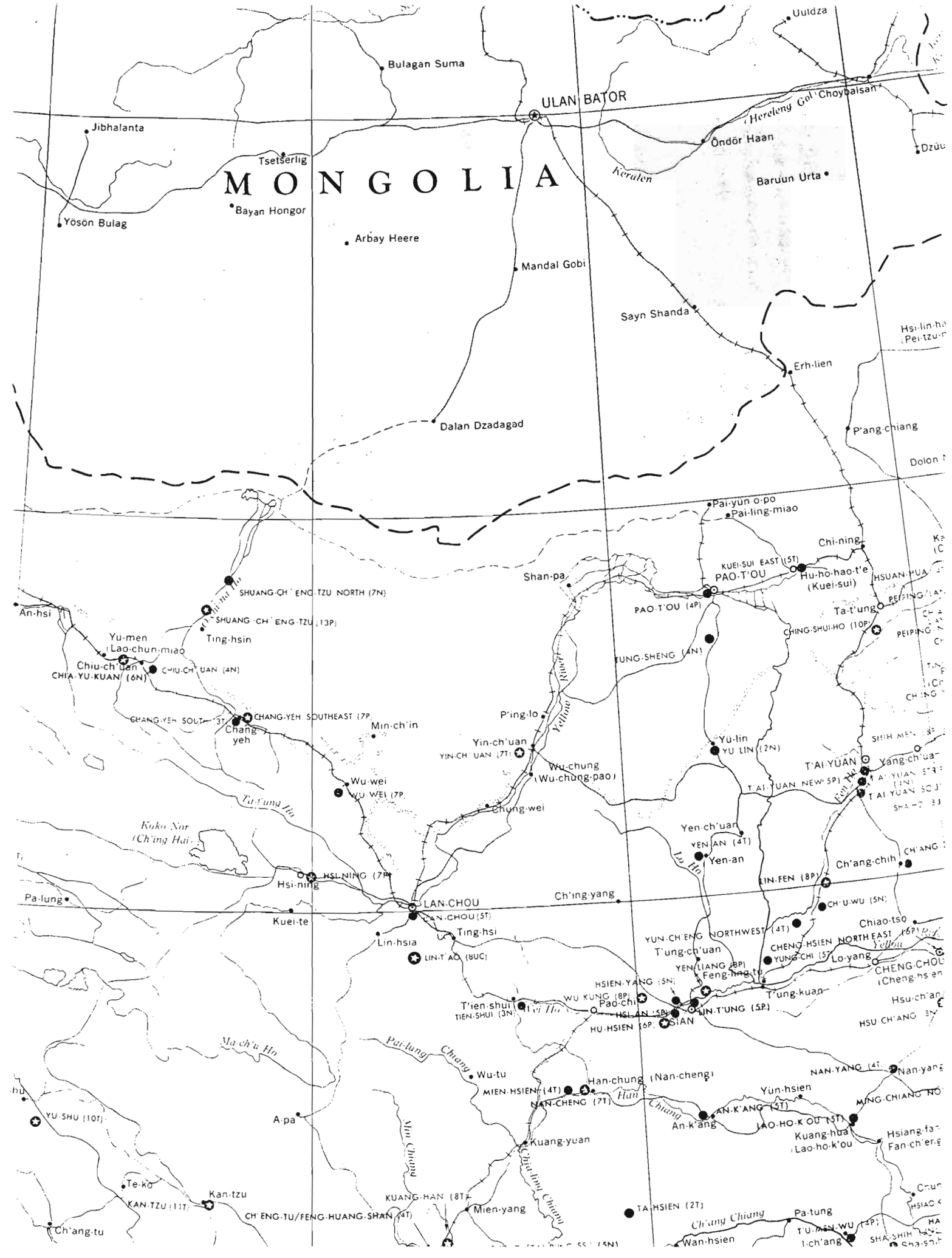
DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

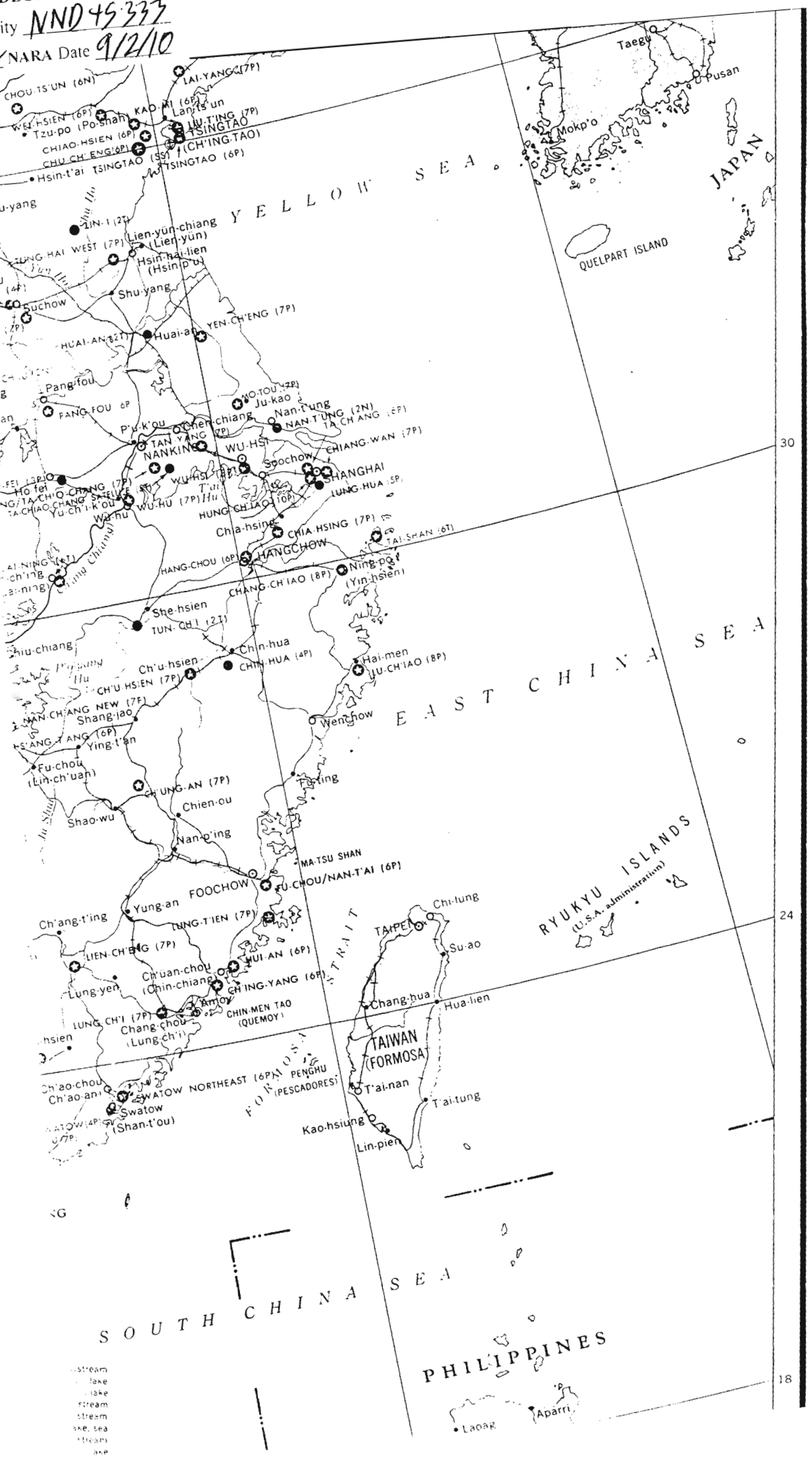


DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

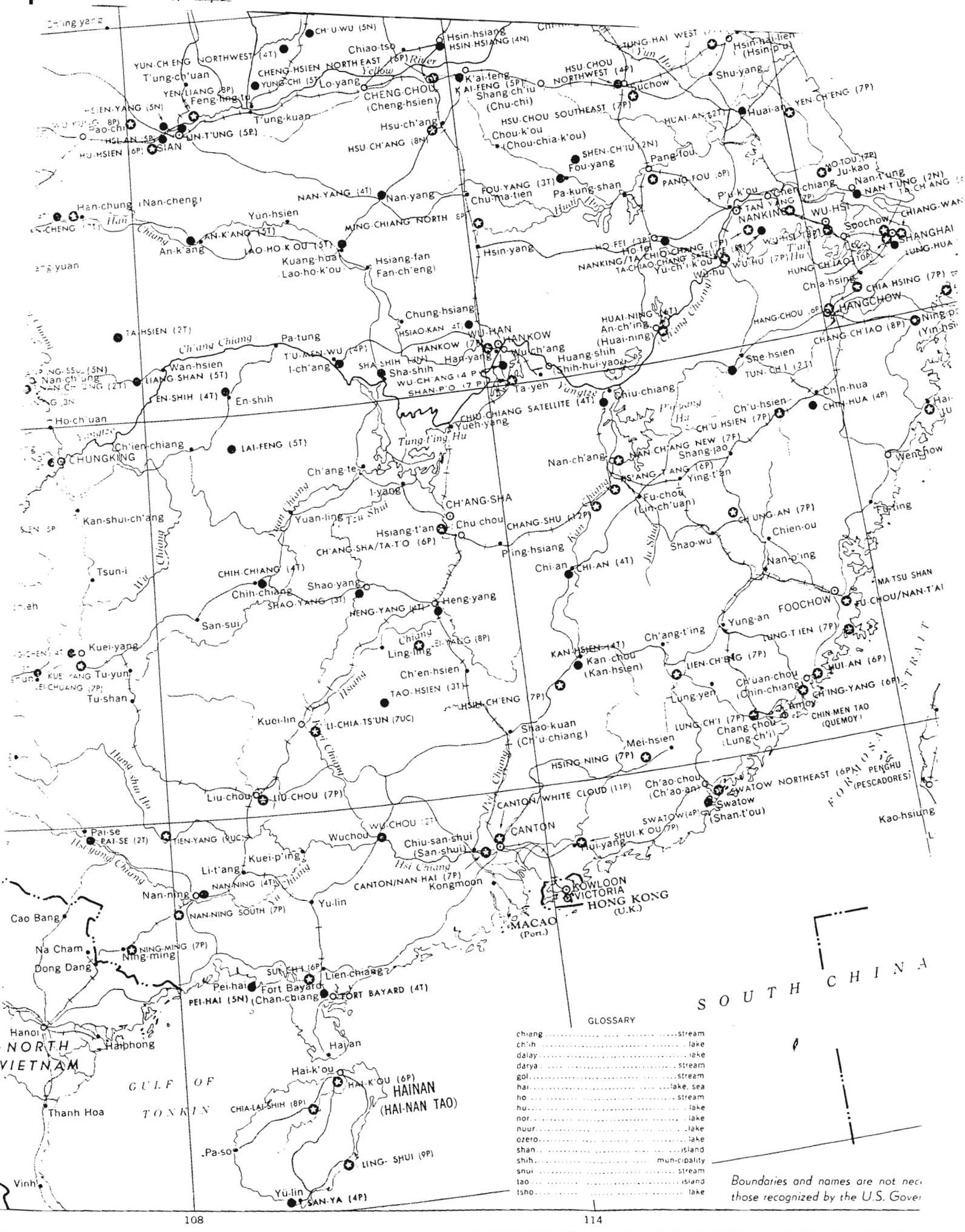


LASSIFIED
NND 45333
RA Date 9/2/10

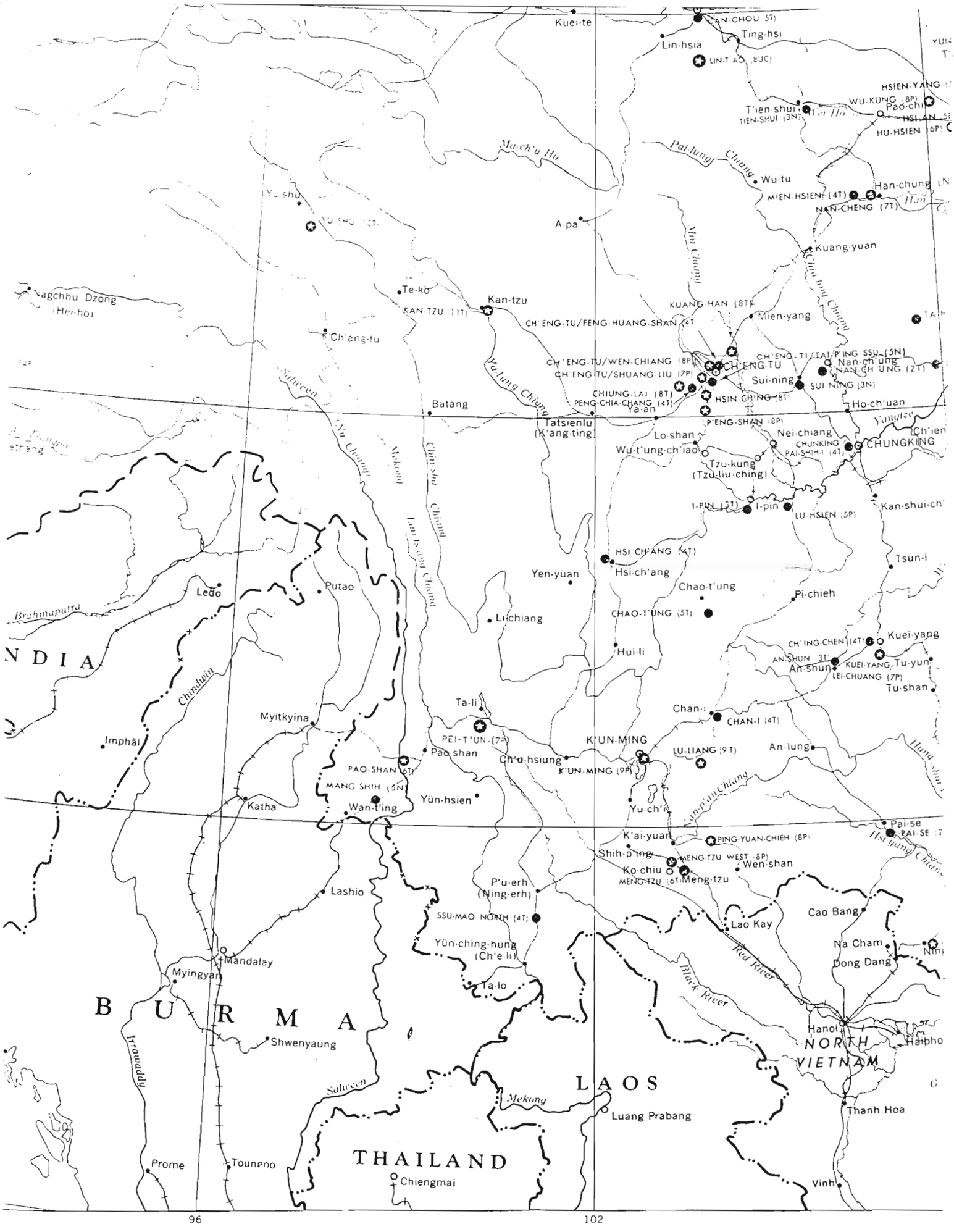
DECLASSIFIED
ity NND 45333
NARA Date 9/2/10



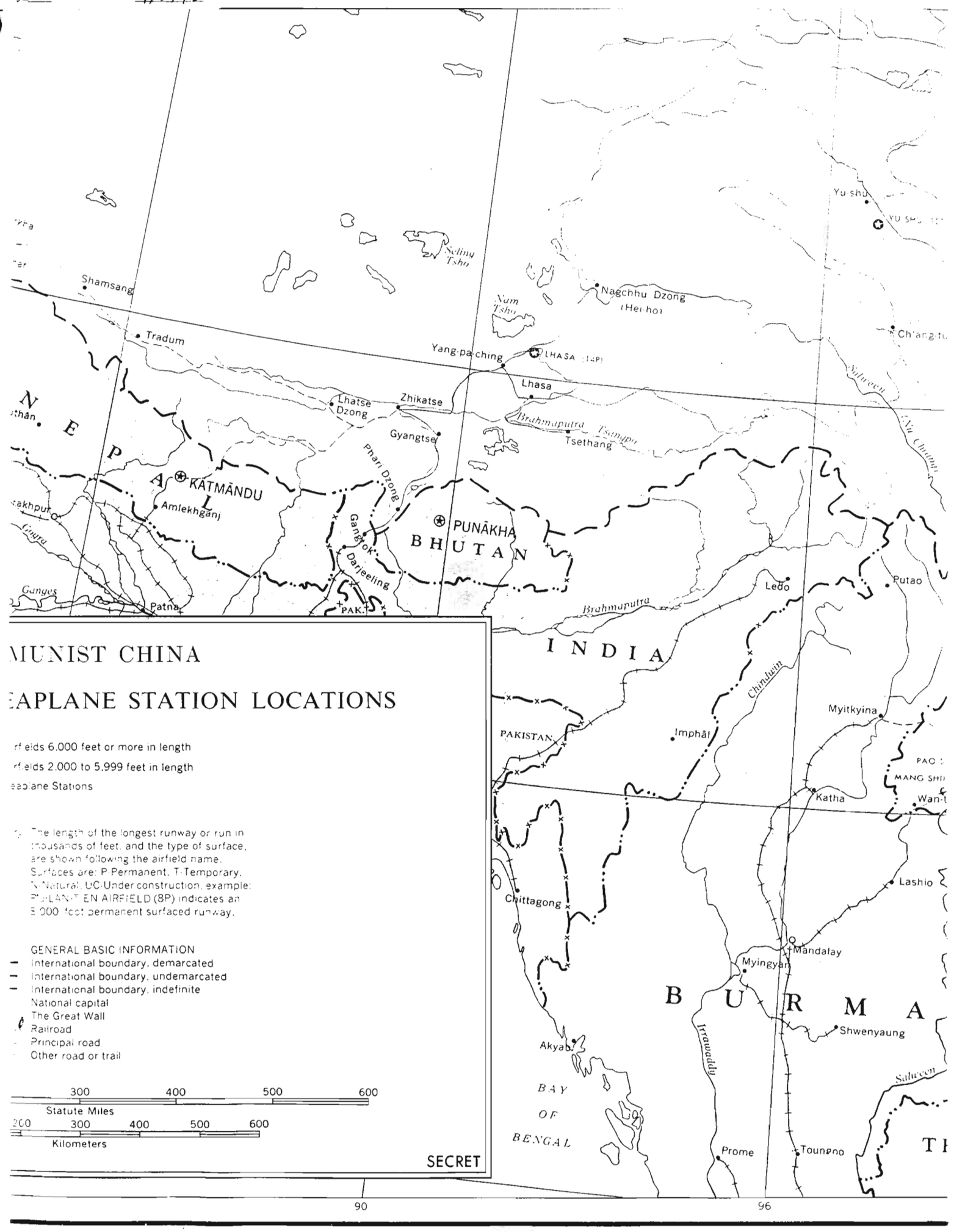
DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10



DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10



DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10



MUNIST CHINA

EAPLANE STATION LOCATIONS

rfields 6,000 feet or more in length
rfields 2,000 to 5,999 feet in length
eaplane Stations

The length of the longest runway or run in thousands of feet, and the type of surface, are shown following the airfield name. Surfaces are: P-Permanent, T-Temporary, N-Natural, UC-Under construction, example: PUPLANAT EN AIRFIELD (8P) indicates an 8,000 foot permanent surfaced runway.

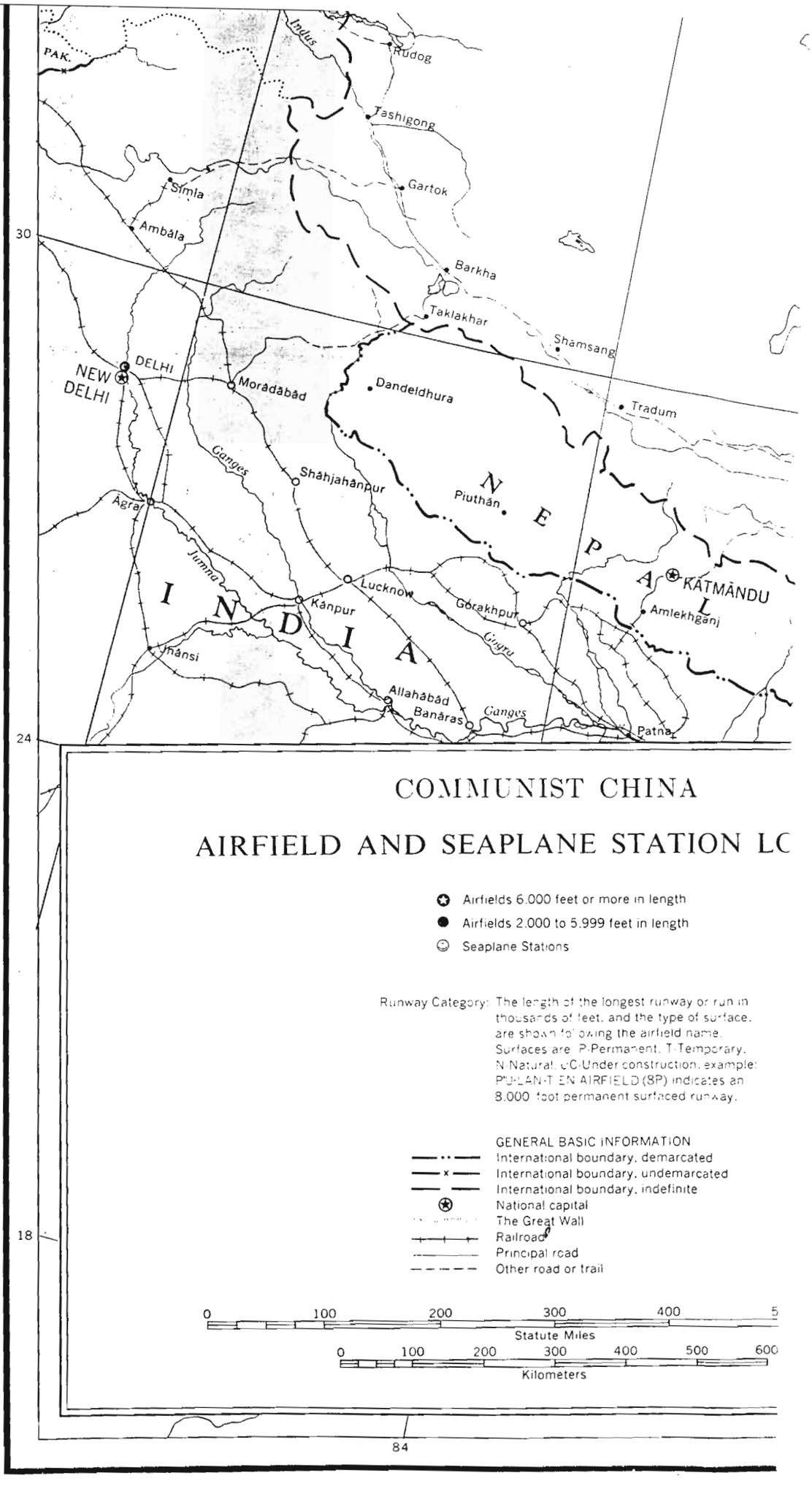
GENERAL BASIC INFORMATION
- International boundary, demarcated
- International boundary, undemarcated
- International boundary, indefinite
- National capital
- The Great Wall
- Railroad
- Principal road
- Other road or trail

300 400 500 600
Statute Miles
200 300 400 500 600
Kilometers

SECRET

DECLASSIFIED
Authority NND 45333
By JW NARA Date 9/2/10

	3-N	46 45	82 58
	5-T	31 58	118 50
	2-T	31 16	107 31
	7-P	31 55	119 47
	6-P	40 32	124 14
	6-P	39 57	124 09
	6-T	30 17	122 08
	5-P	37 50	112 33
	5-P	37 45	112 37
	4-N	37 47	112 33
	7-P	38 47	117 04
	8-P	39 39	118 08
	3-T	25 32	113 35
	7-P	41 06	122 51
	6-T	43 56	87 24
	3-N	34 33	105 52
	9-UC	23 44	106 58
	6-P	39 07	117 21
	7-P	39 15	115 50
	8-P	38 24	116 56
	6-P	36 10	120 23
	SS	36 03	120 17
	8-P	38 54	121 15
	4-T	42 53	89 17
	4-P	30 40	111 27
	2-T	29 42	118 18
	4-P	43 21	128 10
	3-T	44 07	129 13
	6-P	42 40	125 30
	7-P	34 35	118 52
	8-P	39 48	116 42
	7-P	40 06	117 53
	4-T	43 36	122 11
	4-N	39 59	109 51
	5-N	45 40	126 32
	3-P	46 04	122 03
	6-P	36 39	119 07
	4-P	44 27	129 32
	6-P	37 11	122 13
	4-P	30 31	114 18
	2-T	23 29	111 19
	8-P	31 29	120 27
	7-P	31 24	118 24
	8-P	34 17	108 16
	10-UC	42 11	87 14
	7-P	38 00	102 34
	4-T	40 42	89 02
	7-P	47 14	123 55
	6-P	39 22	117 05
	4-T	36 38	109 32
	7-P	33 26	120 12
	4-P	42 54	129 33
	6-P	42 53	129 27
	8-P	34 39	109 15
	6-P	37 24	121 22
	7-T	38 30	106 12
	7-P	39 00	121 23
	2-N	38 17	109 25
	10-T	32 53	96 47
	6-N	37 47	114 34
	4-T	35 03	110 57
	5-T	34 52	110 23

FIELDS AND SEAPLANE STATIONS

	RUNWAY SURFACE				TOTAL
	P	T	N	UC	
	1	0	0	0	1
	1	0	0	0	1
	1	0	0	0	1
	1	2	0	0	3
	2	1	0	1	4
	3	1	1	1	6
	30	3	2	2	37
	43	2	2	2	49
	45	5	6	0	56
	7	10	10	0	27
	18	33	6	0	57
	8	10	4	0	22
	2	8	4	0	14
	162	75	35	6	278
s					1
					279